

The Kenai Comprehensive Plan

January 1980

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K425
1980

prepared by:
R.W. Thorpe and Associates
Mundy/McCrackin and Associates
The TRANSPRO Group

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January 1980

"The preparation of this document was financed in part by funds from the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, U. S. Department of Commerce, administered by the Division of Community Planning, Department of Community and Regional Affairs."

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The TRANSPO Group

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Abstract:

Title: The Comprehensive Plan for the City of Kenai

Authors: R. W. Thorpe & Associates

Subject: The Comprehensive Plan for the City of Kenai, including chapters on Land Use, Community Facilities, Circulation, Services, Wetlands and Implementation Strategies

Date: January 1980

Sponsoring Agency: Kenai Peninsula Borough

Source of Copies: The City of Kenai, P.O. Box 580, Kenai, AK 99611
Kenai Peninsula Borough, Box 850, Soldotna, AK 99669

Number of Copies Printed: 250

The intent of the Comprehensive Plan presented in this report is to present alternatives for land use, community facilities and circulation. In addition, special sections have been written on the business district, wetlands, public services and implementation strategies. This report represents the culmination of twelve months of planning activity, starting with the information generated in the initial phase of the inventory process. This inventory included information on the physical as well as human environment, which were analyzed with regard to the growth potential within the City of Kenai.

One of the most important bases for the Comprehensive Plan is the economic and population study conducted by Mundy-McCrackin Associates of Anchorage/Seattle. A summary of the economics and population analysis is presented in a chapter entitled, "Kenai Today." The primary objective of the Kenai Comprehensive Plan is to develop an environmentally and economically sound physical plan that is responsive to the social needs of the community and reflects the projected population

growth. A key aspect in the development of the plan has been the identification of areas with building constraints. The City of Kenai is in a unique position, in that approximately 60 percent of the land is within public ownership. Much of this land does hold severe constraints to building. However, several hundred acres offer some excellent opportunities for residential and commercial growth. Presented within the implementation strategies are ways of promoting residential and commercial growth in a more centralized fashion, while preserving the natural character of the wetland environments.



R.W. Thorpe & Associates
Planning • Environmental Analysis • Economics

Associates:
Len Zickler
Deborah Krouse

April 10, 1980

Mr. Vince O'Reilly, Mayor
City of Kenai
P.O. Box 890
Kenai, Alaska 99611

Mr. Jim Hendricks, Senior Planner
Kenai Peninsula Borough
P.O. Box 859
Soldotna, Alaska 99669

Re: City of Kenai Comprehensive Plan - Final

Dear Mayor O'Reilly and Mr. Hendricks:

This document represents the final Comprehensive Plan for the City of Kenai, which includes chapters covering economics and population, land use, community facilities, transportation, wetlands, services and implementation strategies. A summary of the existing conditions is also included. This document summarizes the work done in previous phases of the contract including the detailed economic and population study, as well as a summary of the physical environment and the human environment, and an outline of the alternatives explored in the development of the Comprehensive Plan. Included under the major headings of Land Use, Circulation, Community Facilities and the Business District are specific implementation strategies for the realization of the proposed plans.

We have been very fortunate over the last several months in the development of the Comprehensive Plan to have received excellent assistance from City staff, boards and commissions as well as vital citizen input at work sessions. We therefore wish to acknowledge their contributions and participation, as it is vital to the successful adoption of the Comprehensive Plan. We have enjoyed working with you and the City staff in the preparation of Kenai's Comprehensive Plan, and are confident it will serve as a useful tool for guiding growth throughout the years to come.

Sincerely,


R. W. Thorpe, AICP

RWT:BB



KENAI PENINSULA BOROUGH

BOX 850 • SOLDOTNA, ALASKA 99669
PHONE 262-4441

DON GILMAN
MAYOR

April 7, 1980

R. W. Thorpe and Associates
815 Seattle Tower
Third at University
Seattle, Washington 98101

Dear Mr. Thorpe:

Enclosed is a certified copy of the Borough Assembly's ordinance adopting the Kenai Comprehensive Plan for inclusion in the final printed plan.

Sincerely,

JAMES HENDRICKS
Senior Planner

JH:gp

Enclosure: Certified Copy Kenai Peninsula Borough
Ordinance 80-9

Introduced by: Mayor, at request
of Planning Com-
mission

Date: Feb. 5 Tabled; Set for Hearing Feb. 19
Hearing: March 18, 1980; Failed w/Reconsideratn
Vote: 53 "Yes" to 33 "No"
Action: Enacted with Plan Amended, April 1, '80

KENAI PENINSULA BOROUGH

ORDINANCE 80-9

ADOPTING A COMPREHENSIVE PLAN FOR THE CITY OF KENAI AS A
PART OF THE KENAI PENINSULA BOROUGH COMPREHENSIVE PLAN.

WHEREAS, the Borough Planning Commission is required
to prepare and recommend to the assembly a comprehensive
plan for all areas encompassed by the Borough; and

WHEREAS, the Borough Planning Commission is required
by statute to review the Borough comprehensive plan every
two years; and

WHEREAS, the Kenai Advisory Planning Commission, after
public hearing, has recommended adoption of a revised com-
prehensive plan for that area of the Borough within the
boundaries of the City of Kenai; and

WHEREAS, the Kenai City Council has recommended that
the "City of Kenai Comprehensive Plan" be adopted by the
Borough Assembly; and

WHEREAS, the Borough Planning Commission, after public
hearing, has reviewed the Kenai Comprehensive Plan Draft,
September, 1979, and has recommended that the assembly
adopt the plan;

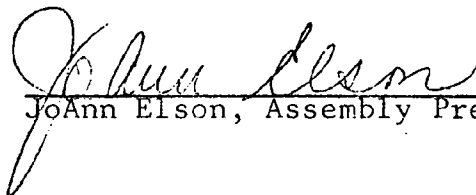
NOW THEREFORE, BE IT ENACTED BY THE ASSEMBLY OF THE
KENAI PENINSULA BOROUGH:

Section 1. That the assembly adopts the "City of Kenai
Comprehensive Plan", R. W. Thorpe & Associates (Final Draft
of September, 1979) as the official Borough Comprehensive
Plan for that portion of the Borough within the boundaries

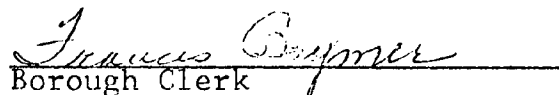
of the City of Kenai, as approved by Resolution of the Borough Planning Commission on January 7, 1980.

Section 2. That this ordinance takes effect immediately upon its enactment.

ENACTED BY THE ASSEMBLY OF THE KENAI PENINSULA BOROUGH
ON THIS 1st DAY OF April, 1980.


JoAnn Elson, Assembly President

ATTEST:


Borough Clerk

Kenai Peninsula Borough
Ordinance 80-9
Page 2 of 2 Pages

The undersigned does hereby certify that the Ord 80-9
is a true and correct copy of the official records of the Kenai
Peninsula Borough on file in the Clerk's office.

Soldotna, Alaska 7 day of April, 1980


Borough Clerk

PROJECT PARTICIPANTS

City Council

Mayor Vincent O'Reilly
Councilman Michael Seaman
Councilman Edward Ambarian
Councilwoman Betty Glick
Councilman Ronald Malston
Councilman Phillip Aber
Councilman Charles Bailie*
Raymond Measles

* Former Member

Park and Recreation Commission

Port and Harbor Commission

City Administration

Finance Director
City Attorney

Public Works Director
City Engineer
Parks and Recreation Director
City Clerk

Fire Chief
Police Chief
Librarian

Borough Planning Staff

Kenai Peninsula Borough:

Advisory Planning and Zoning Commission

Philip Bryson, Chairman
Sol Raymond*
Jerry Andrews
Karen Mahurin
John Monfor*
Dwain Gibson*
Nick Miller*
Councilwoman Glick, Ex-Officio Member
Dave Curtis
Jim Blanning
George Fox

Charles Brown (Acting City Manager)
Ernest Schlereth*
Ben Delahay
Keith Kornelis
Bill Nelson
Kayo McGillvray
Sue Peter*
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Walter Winston
Richard Ross
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Ike Waits, Principal Planner
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James Eaton, P.E.	Hydrology and Soils Consultant
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Jean Hager:

Word Processing

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KENAI TOMORROW

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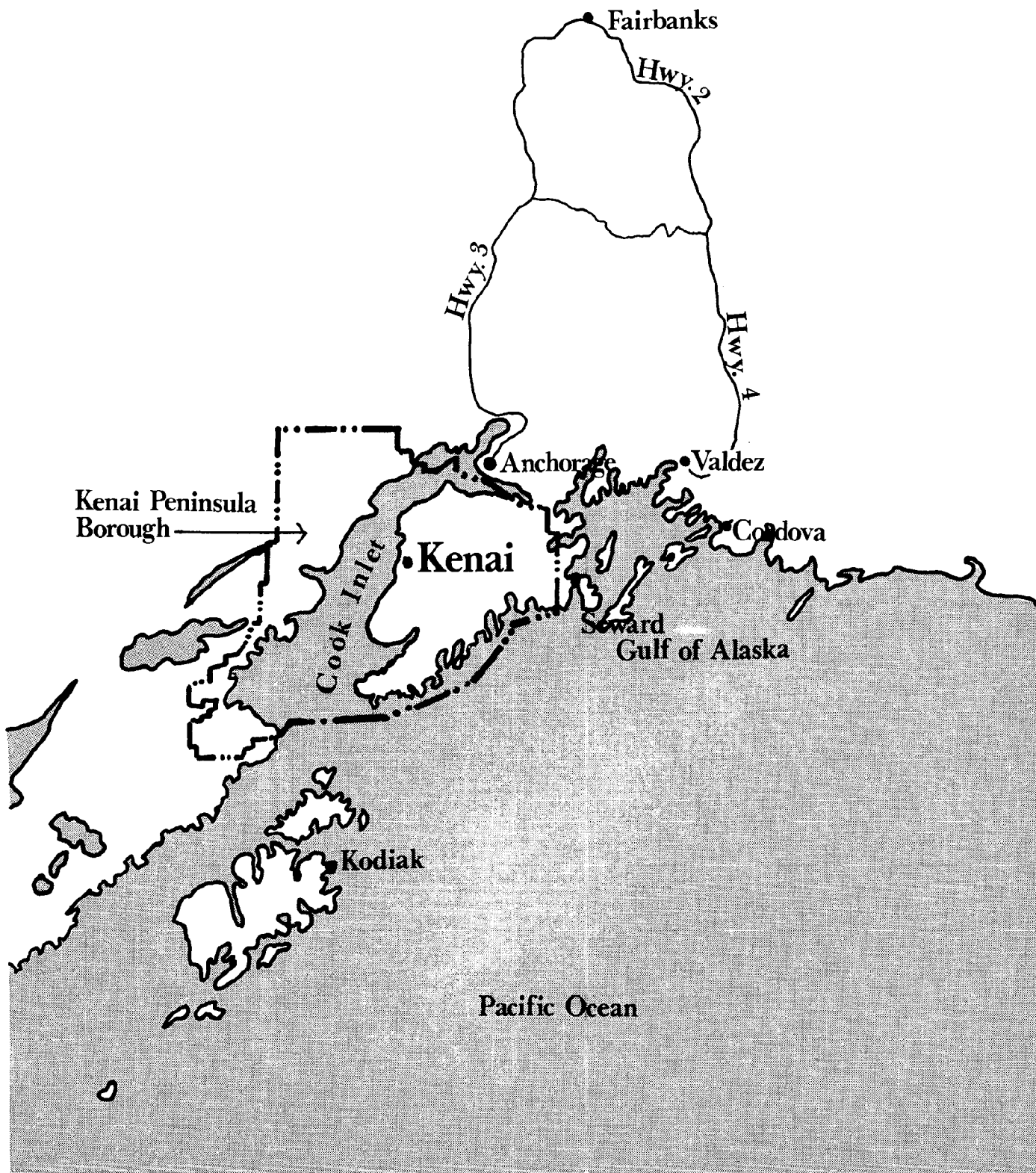
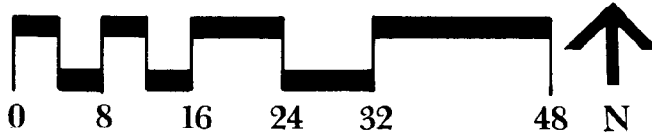


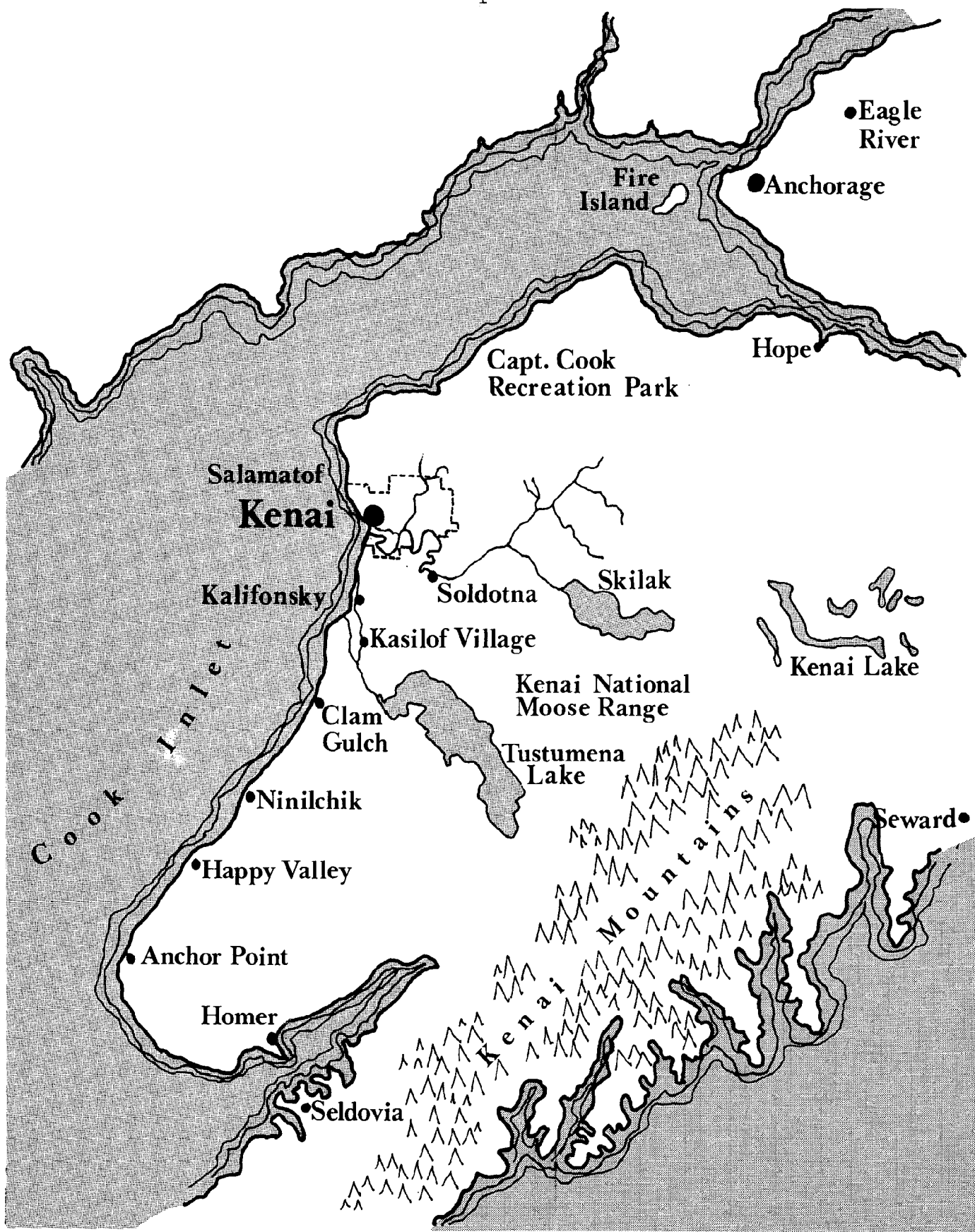
Figure 1

Location Map

R.W. Thorpe & Associates



Introduction



Vicinity Map

R.W. Thorpe and Associates



Figure 2

Background

The City of Kenai is at an important time in its evolution as a community. Offshore oil development on the Cook Inlet has had a significant impact on the current condition of the community and will continue its influence. Recent developments in the oil industry and Kenai's location make it a crossroads for transportation and a regional shopping area. The recreational setting and opportunities of the area add a dimension of diversity that will assist in assuring a stable future.

Recent pending decisions related to offshore oil development, the availability of planning monies from state and federal sources, and a need for an updated look at the community all have provided impetus for the present study. R. W. Thorpe & Associates and Mundy/McCrackin Associates were retained in January, 1979 to undertake the Comprehensive Plan update. The TRANSPO Group assisted in preparing the circulation element of the update.

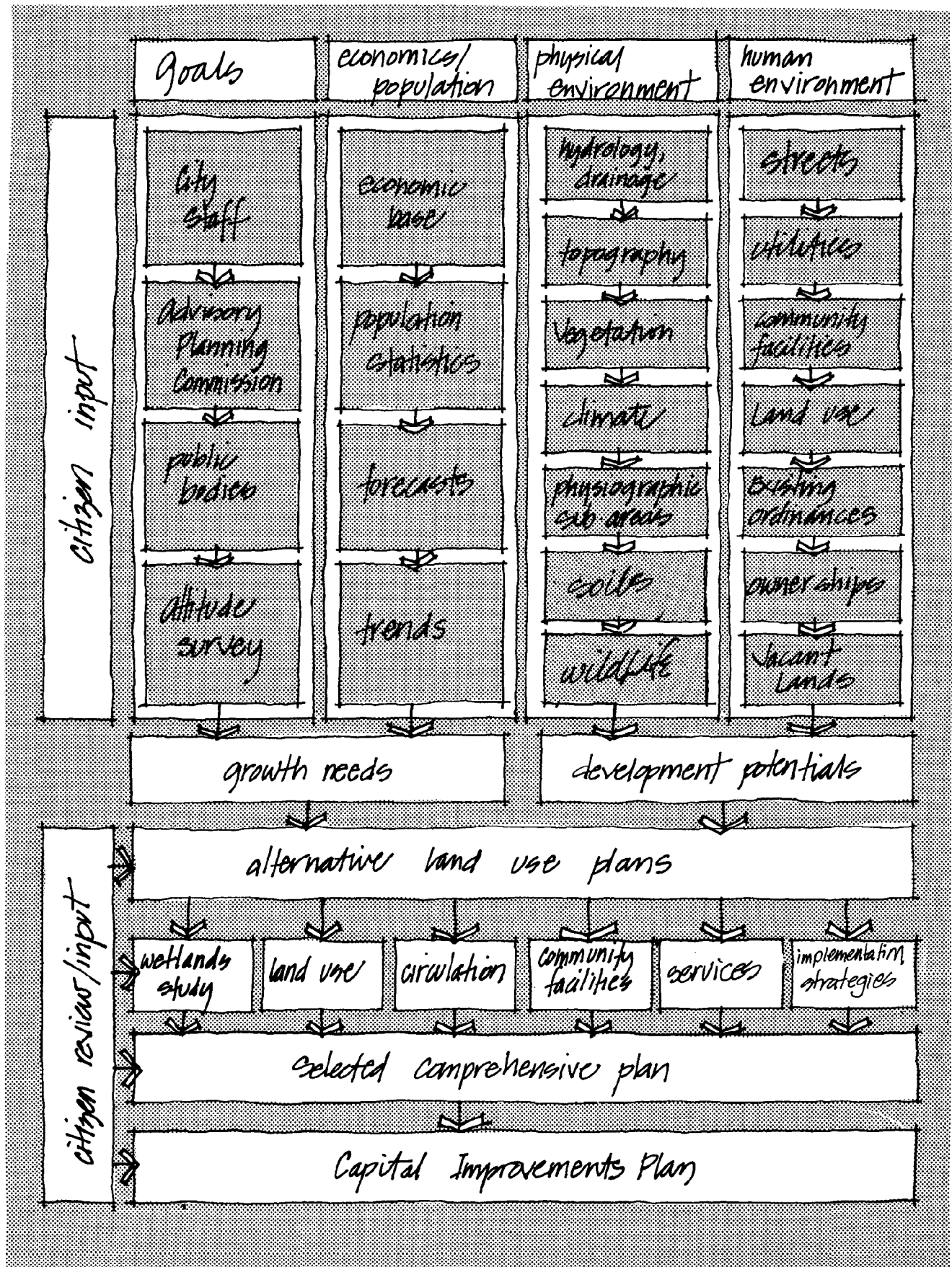
In the initial weeks of January and February, during finalization of the consultant contract, a framework for citizens' participation was developed. This framework, to date, has consisted of input from a number of City boards, citizens' groups, City staff, the City Council and from the local residents through an attitude survey. Surveys were mailed to each box holder in the community followed by a reminder of the survey's importance. An excellent response was received to the survey initially and throughout the study period.

The Planning Process

The basis for the comprehensive plan is the development of the goals and objectives around which the plan is built. Goals and objectives, if they are to be meaningful, must represent the values, views and desires of the citizens of the community. If they do not, the failure of a comprehensive planning program can almost be predicted.

In order to obtain citizen input, the City of Kenai, the Borough and the consultants conducted a number of citizen involvement programs. The first of these programs was the development of a community attitude survey. This survey, conducted in March, 1979 provided valuable input on a variety of policy questions. The goals and objectives identified are expanded in the Technical Appendix of the Comprehensive Plan.

The process undertaken for the development of the City of Kenai Comprehensive Plan was traditional in its organization; however, the planning team has attempted to emphasize the potentials and problems of the elements in the physical and human environment, presented in the inventory. Four areas of general concern have provided the focus for the present Land Use Plan: 1) Citizen Input in Goals; 2) Population and Economics; 3) Elements of the Physical Environment; and 4) Elements of the Human Environment. The inventory of these four elements was undertaken in the January through April, 1979 time period. This represented the initial phase of the planning process. The second phase developed and presented three alternative land use plans. From the Goals and the Economic and Population sections of the inventory, the consultants identified the growth needs of the community. From the inventories of the physical and human environments the consultants identified the development potentials and constraints afforded by Kenai's setting. As a result of analyzing growth needs and this development potential the three alternative land use plans were prepared. Within these alternative land use plans, particular attention was paid to needs of residential, industrial, and commercial land uses, circulation needs, community facility needs, as well as a special section related to the Central Business District. From the alternative land use plans, the consultants worked with the Advisory Planning Commission and City Council representatives to formulate a draft Comprehensive Plan, which includes a Wetland Study, Services Study and Implementation Strategies. The planning process is presented in Figure 3.



Comprehensive Plan Methodology

Figure 3



Kenai in the past

History

The community of Kenai, Alaska, has been a center for human commerce since it was first settled by the Kenaitze Indian people in ancient times. Building their economy on the rich animal resources of the sea and land, the Kenai Indians were able to provide subsistence for more than 3,000 people at the time of first contact. Although the tribe lived along the entire east shore of Cook Inlet from Anchor Point to Possession Point, they most often utilized the Kenai and Kasilof River watersheds for hunting and fishing.

The culture of the native Indians was significantly altered by the arrival of Russian fur hunters on the Peninsula in the late 18th century. Settlement of Fort St. Nicholas by the Libedeff-Lastochkin in 1791, near the Kenai village at the mouth of the Kenai River, closely followed the first Russian settlement on the Kasilof River. A vigorous rivalry between Russian trading companies soon developed, leading to the establishment of the Russian-American Company at the end of the century, which controlled the entire region and administered it until 1867 when the United States purchased Alaska from Russia.

The Indians rebelled several times against Russian rule in response to the disruption of their culture as Russian missionaries and settlers attempted to change native customs and lifestyles. Further, by 1846, when Father Egumen Nicholas arrived to become the first resident priest of the Russian Orthodox Church, the tribe's population had been reduced to less than one-half by such rampant epidemics as smallpox, measles, influenza, tuberculosis and syphilis. Finally, the Kenaitze race was slowly assimilated into the Russian culture through marriages.

Father Nicholas, as the Russian priest was known, became a prominent and respected figure in the life of the community, working among the people for 21 years. He is buried beneath the blue-domed shrine building which still stands in the village of "Old Kenai."

The primary focus of the Russians in their Alaskan colonies was fur trapping. Other than maintaining a few head of cattle and several acres of potatoes, turnips and grasses at Fort St. Nicholas, the Russians did not farm the land extensively. The Russians did not control the extent of fur trapping and thus, the fur-bearing animal populations were greatly depleted. The Russian Orthodox Church in Kenai is perhaps one of the most visible of the few remnants of Russian dominance in the Kenai region and remains a tourist landmark today.

Following the sale of Alaska in 1867, Russian landholdings were acquired by the Alaska Commercial Company, which established a trading post at Kenai. A military post, Fort Kenay, was also maintained for a brief period of time. Characterized as a period of lawlessness by historians, the early days of American influence were also the beginning of a new economic era as miners, fishermen and traders began to enter Alaska.

Gold had been discovered in the Kenai River in 1848 by a Russian mining engineer, and from 1895 to 1910, every creek in the area was prospected by miners. The northern part of the peninsula has produced significant amounts of placer gold since 1900. Also, the annual return of the salmon in large numbers allowed Kenai to orient itself to the 2 to 3 summer months of fishing; the first cannery in Kenai was built in 1898 by the Steam Whaling Company. The establishment of the fishing industry on the peninsula formed the basis of a stable, low-keyed economy, which employed American, Chinese, Hawaiian and Filipino workers. Moreover, American missionaries of all denominations and fur traders contributed to the cultural and economic flux.

The Kenai Post Office was established in February 1899, and in the same year a branch of the Alaska Agricultural Experimental Station was founded in an effort to discern the agricultural potential of the region. The study revealed that a wide variety of vegetables, berries and some cereal grains thrived in the climate and cattle industry could

be supported by hay made from native grasses. However, an overall lack of markets, coupled with the low population and remoteness of the area stifled homesteading activities until after 1945.

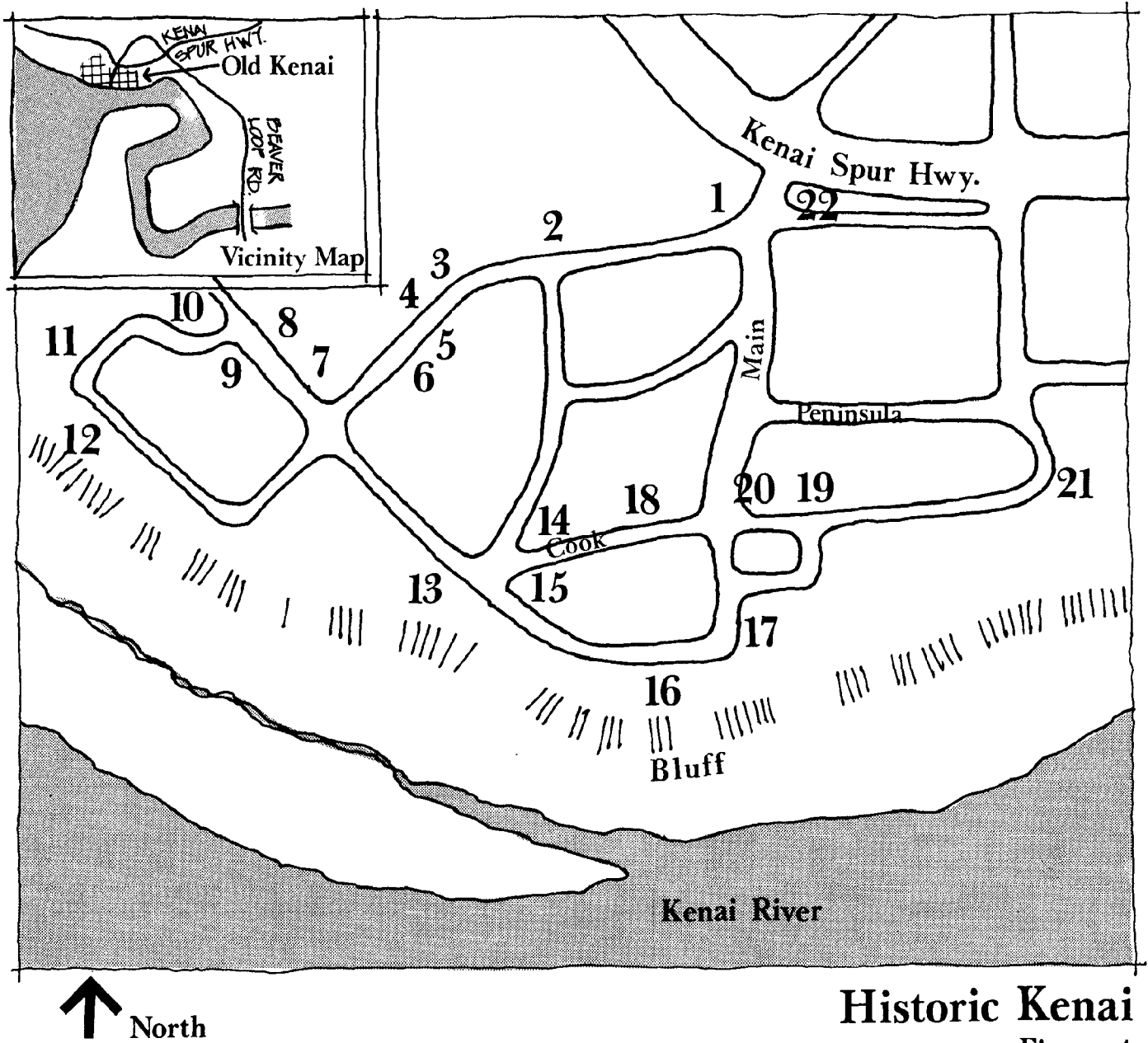
The period of the second World War brought many changes to Kenai. In Kenai, the airport was built in the early 1940's, and by 1952 the highway to Seward and Anchorage had been completed. The territory was open to homesteading in September 1947, as a result of the Veterans Homestead Act; more than 15,000 acres were homesteaded in the Kenai area. However, an agricultural base did not develop, and homesteading never became a major part of the local economy, since most homesteaders used farming as a part-time job, relying on commercial employment for much of their income.

In 1951 construction of the U.S. Army's Seward Station was begun at Kenai which later became the Wildwood Air Force Station. When operating, the station became a major contributor to the local economy as a source of employment, creating the need for additional housing facilities and service-oriented trades. The station was closed in 1972, and ownership was transferred to the Kenai Native Association to establish a native town as part of the Alaska Native lands claims settlement.

With the discovery of the Swanson River oil field in 1957, and subsequent mining of the resource, the community was again significantly affected by a shift in the local economic structure. Construction and operation of refineries north of Kenai promoted rapid population growth, and the development of a modern community based on the petroleum industry.

The City of Kenai was incorporated in 1960; the population was 778 and grew to an estimated 4,374 people by 1978. It continues to function as a cultural and commercial center for the north peninsula area, as well as attracting tourists and business people from Anchorage and outside the state. The growth of leisure and recreation activities

combined with improved air travel will once again be a force for change in the community. The following Figure 4 identifies a number of historic places in Old Kenai.



Historic Kenai
Figure 4

- | | |
|--------------------------------------------------|---------------------------------------------|
| 1. Kenai Chamber of Commerce, Information Center | 12. Bluff View and Meeks Crossing |
| 2. Helen Jones Home | 13. Site of U.S. Marshall's Office and Jail |
| 3. Kenai Experimental Station | 14. First Kenai Drugstore |
| 4. Kenai National Moose Range Headquarters | 15. Kenai Commercial Company |
| 5. George Miller Home | 16. Scenic View and Beluga White Whales |
| 6. Kenai Power Corporation | 17. Fred Miller Home |
| 7. Ft. Kenai Complex | 18. Interlocked Moose Horn Club |
| 8. Parish House | 19. Kenai Fine Arts Center |
| 9. Russian Orthodox Church* | 20. Kenai Community Center |
| 10. The Shrine | 21. "Keen Eye" Joe's Road House |
| 11. Allan Peterson Home | 22. Blue Star Memorial Plaque |

* Registered Historic Landmark

Kenai today

Economic History and Overview

Historically, the economic viability of the Kenai-Cook Inlet region has been based upon the commercial fishing and fish processing industries, and more recently, tourism and recreational industries, as well as the gas and oil industry.

The commercial fishing industry and related activities date back to the late 1800's and remained the primary basic industry in the region until the mid-1950's. The completion of the Sterling Highway in 1952 opened the recreational assets of the region to Anchorage area residents and the discovery of natural gas in the Swanson River in 1957 launched Kenai as the center of Alaska's oil and gas industry.

Commercial fishermen in Cook Inlet harvest salmon, king crab, tanner crab, dungeness crab, halibut, shrimp and herring, all of which are sufficient to support a large fishing fleet and fish and shellfish processing plants. Cook Inlet is divided into two management areas: Upper and Lower Cook Inlet. The former is about four times as productive as the latter and is characterized by set and drift gill net salmon fishing which yields approximately 90% of the salmon catch in that management area.

In 1976, fishing permits were issued to 309 Kenai residents and 142 Soldotna residents. However, a more accurate assessment of the economic value of the commercial fishing industry in this area may be determined from a review of the capital investment in boat and gear that is required to participate in the various fisheries. For example, salmon purse seining and other fisheries which necessitate a large capital investment, yield the highest financial return, whereas, the drift gill net fishery requires modest capital commitment and produces modest income. The former category is characterized by full-time local resident fishermen and the latter attracts many part-time and non-resident fishermen.

Sport fishing, boating and other outdoor recreational activities in the western Kenai peninsula attract thousands of visitors from the Anchorage area each season. Thus, as the general population in the Anchorage area increases, these components of the area's economic base may be expected to increase at a commensurate rate.

However, during the past 20 years, the stimulus for economic expansion has shifted from the commercial fishing domain to the exploration and development of the oil and gas resources, both upland and offshore, in the Cook Inlet Province.

This region hosts a mature oil and gas complex consisting of a full range of oil field service and supply industries; it is also the nexus of pipelines for collection of crude oil and natural gas production and contains treatment facilities, refineries, a petro-chemical plant, a liquid natural gas (LNG) plant and marine facilities for the transfer of crude oil and LNG for support of offshore operations. Cumulative production of hydrocarbons in Cook Inlet Basin was 755 million barrels of oil through 1976, over 2 billion cubic feet of casinghead and dry gas and over 5 million barrels of natural gas liquids. Oil production peaked in 1970 and has continued to rise with a new peak in 1976. Although the yield of these resources is considered to have peaked, explorations of federal and state lease lands is expected to generate additional employment.

The construction of five major industrial plants and their various additions, in the Nikiski area from 1963 to 1969 instigated for Kenai the cycle of boom growth and difficult readjustment that has characterized the region in the past 15 years.

These plants include the SOCAL (now Chevron) oil refinery, the Drift River crude oil storage and loading facility, the Collier Carbon and Chemical Corporation ammonia-urea plant, the Phillips Marathon LNG plant and the Tesoro-Alaska refinery. Cumulatively, these five facilities generate over 500 direct, permanent, non-seasonal manufacturing jobs in

predominantly the Nikiski area. Due primarily to the expansion and diversification of the petrochemical industrial base in the Nikiski industrial complex, the Kenai-Nikiski area contains approximately 65.8% of the region's additional employment since 1970. Further, as of 1978, oil and gas exploration, development and production activities generated an additional 750-800 jobs in the region in the mining sector.

Moreover, two petrochemical projects have been proposed for the Nikiski area: Pacific-Alaska LNG would construct an \$830 million LNG plant to liquify natural gas for shipment to California markets and Tesoro-Alaska Refinery would install a hydrocracking unit at its refinery in 1980 or 1981 to broaden its product output. These projects would involve a major construction program and a permanent addition to the Nikiski region's manufacturing employment base.

However, employment growth in these four fields has progressed at an uneven rate, for just as the fishing and tourism industries are subject to seasonal oscillations, construction of industrial facilities is subject to repeated boom-bust cycles as a result of successive stages of economic growth.

Traditionally, the Kenai-Cook Inlet labor force is marked by an unemployment rate approximately 50% higher than the statewide rate, which, in turn, is usually one of the highest rates in the nation.

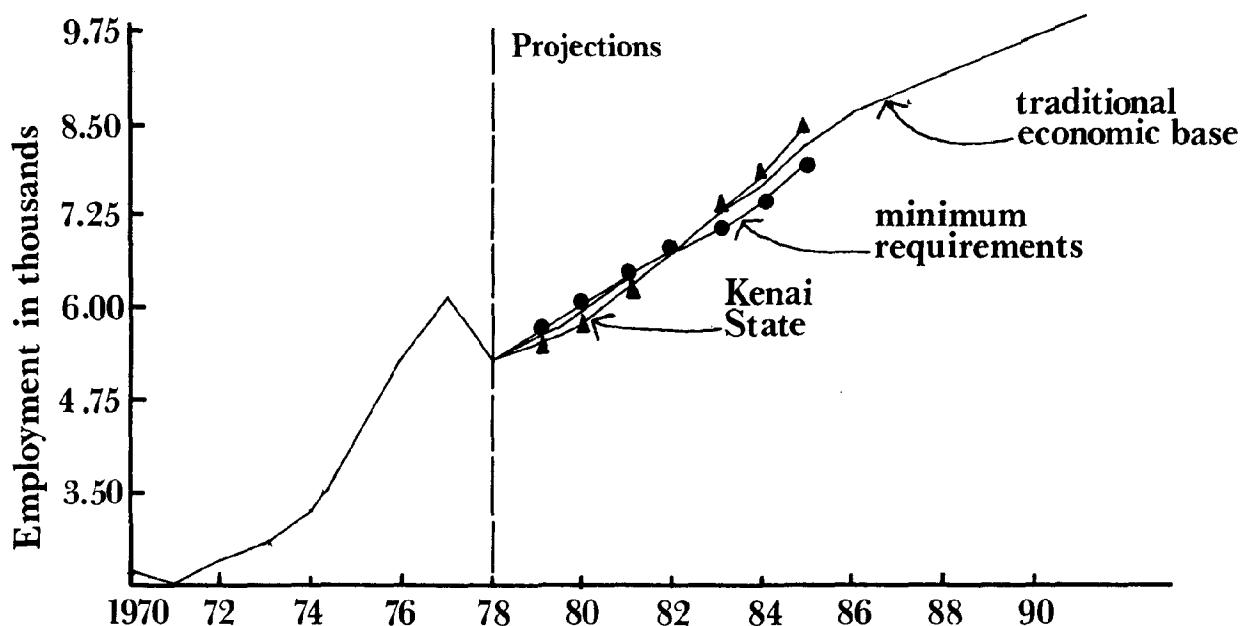
Further, the labor intensive character of construction projects for the key industrial facilities has made the Kenai-Nikiski area prone to exaggerated expansion-contraction cycles and high rates of job turnover. Typically, construction projects generate a brief, furious boom in activity followed by a curtailment to a new employment plateau which is well below the boom peak level, but somewhat higher than before the construction activity. The rapid growth of the region has outpaced the rate of natural population increase; it may be inferred, then, that the region's opportunities have attracted job seekers in excess of available employment opportunities.

Economics and Population

The Kenai Economic Base Analysis and housing and population porjections are included in this Section. A summary of some of the more significant conclusions from the economic base analysis and projections follow. Copies of the complete Economic Base Analysis are contained in the binder of the Technical Appendix.

A shift-share analysis indicates that Kenai, in comparison to the State of Alaska and the United States, on a sector by sector employment basis, had growth greater in all sectors except mining and federal government. This indicates decreased activity in the petroleum sector and decreases in federal employment, rather than increases as one would expect. Kenai is not adding basic manufacturing employment as rapidly as it should given its overall growth rate. Kenai had a very healthy contract construction sector, however this is a very unstable and cyclical employment sector. Good increases were shown in service and trade employment -- an important support sector -- and reflect population increases and new thresholds where more and more service employment will occur to provide services locally, whereas before residents had to go outside or rely on imports to acquire these goods and services. During the 1970 through 1977 period, Alaska's economy outperformed that of the United States and Kenai's economy outperformed that of Alaska.

Three separate types of economic base analyses were used in analyzing Kenai's economy for the 1970 through 1978 period. Projections for 1978 through 1990 were made using these three independent approaches. The employment projections were then reconciled into one overall "baseline" projection. Projected 1980 employment for the Kenai-Cook Inlet area is 7,250; for the Kenai Borough 8,390. By 1985 it is anticipated the Kenai-Cook Inlet area's employment will increase to 9,500, the Borough's to 11,000. By 1990 the baseline case projects a Kenai-Cook Inlet employment level of 11,100 and a Borough employment level of 12,850. Figure 5.

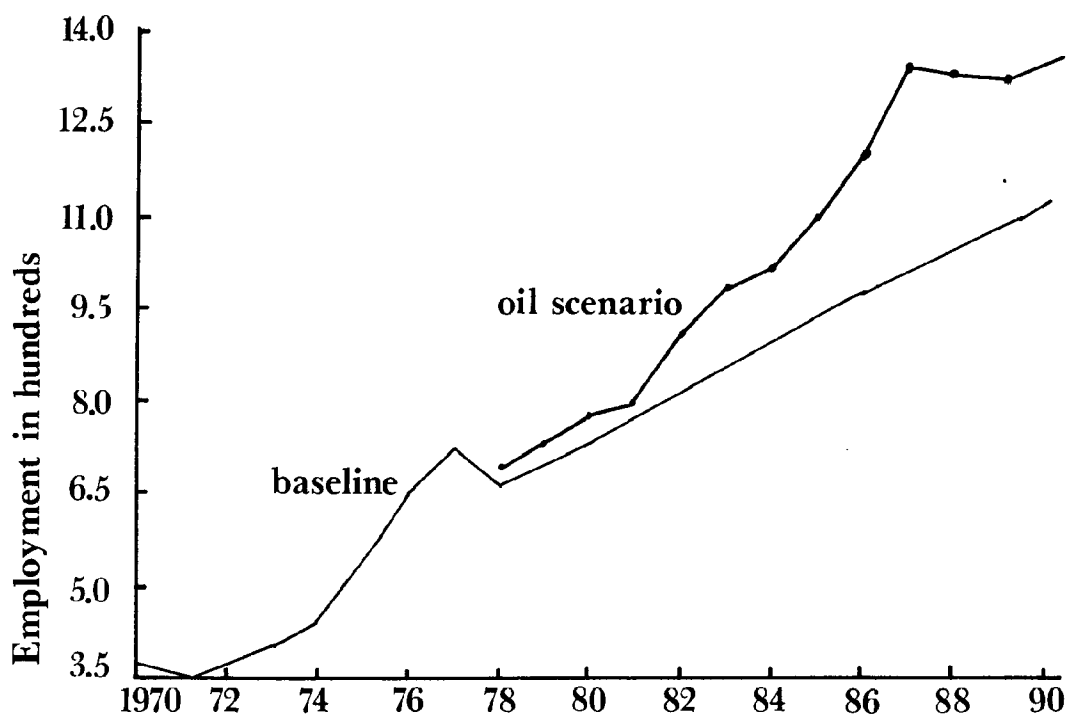


Projected Employment-the Three Approaches Figure 5

Historic data source/ Kenai-Cook Inlet Census Division

A second growth assumption is made for the Kenai area, the Oil Development Case. Here it is assumed that moderate quantities of oil are developed from the October, 1977 lease sale and proposed August, 1981 lease sale. Total employment for the Kenai-Cook Inlet area is projected to increase to 7,690 by 1980, 10,930 by 1985 and 13,690 by 1990. Figure 6.

Kenai's population as of July 1978 is enumerated at 4,374 inhabitants. Other estimates are: occupied dwelling units - 1,389, vacant dwelling units - 405 and total housing stock - 1,794. The baseline case projects population for 1980 at 4,680. The housing stock will change as follows: occupied dwelling units - 1,520, vacant dwelling units - 380 (20.0%), total housing stock - 1,980 dwelling units. For 1985 projections are: population 5,390, occupied dwelling units - 1,770, vacant dwelling units - 330 (16.0%) and total housing stock - 2,100. By 1990 the population and housing is projected to increase to: population - 6,140, occupied dwelling units - 2,010, vacant dwelling units - 390 (16.0%) and total housing stock - 2,400 dwelling units. Refer to Table 1.



Projected Employment-Comparison

Figure 6

Kenai Cook Inlet Census Division

Table 1
Demographics
City of Kenai Baseline Projections

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
<u>Population</u> - Borough	25,335	26,470	27,200	27,850	28,650	29,710	31,450	32,850	34,220	35,240	36,280	37,330	38,370
Kenai as % of Borough	17.3	17.5	17.2	17.0	16.8	16.6	16.5	16.4	16.3	16.2	16.1	16.0	16.0
<u>Population</u> - Kenai	4,374	4,630	4,680	4,730	4,810	4,930	5,190	5,390	5,580	5,710	5,840	5,970	6,140
<u>Housing</u>													
Dwelling Units (DU)	1,794	1,880	1,890	1,890	1,900	1,930	2,020	2,100	2,180	2,230	2,280	2,330	2,400
Vacant DU	405	400	380	360	340	320	320	330	350	360	370	370	390
%	22.6	21.0	20.0	19.0	18.0	17.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Occupied DU (ODU)	1,389	1,480	1,520	1,530	1,560	1,610	1,700	1,770	1,830	1,870	1,910	1,960	2,010
P/ODU	3.15	3.12	3.10	3.09	3.08	3.07	3.06	3.05	3.05	3.05	3.05	3.05	3.05
Starts/1,000 Population		18.0	1.5	.6	3.0	6.1	16.3	15.7	13.3	8.9	8.7	8.5	10.8

Source: Bill Mundy & Associates, Inc. Computerized Employment-Population-Housing Model.

Under the oil development scenario Kenai's population and housing for 1980 are projected at: population - 5,050, occupied dwelling units - 1,620, vacant dwelling units - 400 (20%) and total housing stock - 2,020. By 1985 the population should reach 7,650. The housing stock would consist as follows: occupied dwelling units - 2,590, vacant dwelling units - 240 (8.5%) and total housing stock - 2,830. By 1990 characteristics of the economy would be: population - 10,670, occupied dwelling units 3,680, vacant dwelling units - 280 (7.0%) and housing stock - 3,960. During the years of intensive oil development very significant pressures could be applied to the Kenai housing sector which will result in a housing starts rate of between 40 and 45 per 1,000 population. This is a rate some 4 times that typically found in the United States, and 3 times that found in areas where the housing sector is considered very active. Refer to Table 2.

Table 2
Demographics
City of Kenai
Oil Development Scenario

	1979	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Kenai-Cook Population	25,335	23,630	24,650	24,690	27,450	28,820	29,870	31,890	34,530	38,140	38,170	38,200	39,500
Kenai as % of Kenai-Cook	17.3	20.5	20.5	20.5	21.5	22.0	22.0	24.0	25.0	27.0	27.0	27.0	27.0
<u>Population</u> (P) Kenai	4,374	4,790	4,840	5,060	5,900	6,340	6,570	7,650	8,630	10,300	10,310	10,310	10,670
<u>Housing</u>													
Dwelling Units (DU)	1,794	1,990	2,020	2,050	2,260	2,400	2,530	2,830	3,170	3,640	3,800	3,910	3,960
Vacant DU	405	440	400	420	340	300	340	240	190	150	270	350	280
%	22.6	22.4	20.5	20.5	15.0	12.5	13.5	8.5	6.0	4.0	7.0	9.0	7.0
Occupied DU (ODU)	1,389	1,550	1,620	1,630	1,920	2,100	2,190	2,590	2,980	3,490	3,530	3,560	3,680
P/ODU	3.15	3.13	3.12	3.11	3.07	3.02	3.00	2.95	2.90	2.95	2.92	2.90	2.90
Starts/1,000 Pop.		5.8	6.6	4.6	35.7	21.8	20.1	39.7	38.4	45.7	15.5	10.4	4.6

Source: Bill Mundy & Associates, Inc. Computerized Employment-Population-Housing Model.

Also, as a part of the economic base analysis, housing demand is disaggregated into type: single family detached, multiple-family and mobile home. Commercial real estate needs are also estimated. Please refer to Tables 3 and 4 and Figure 7.

Table 3

City of Kenai
Population & Housing Change
Baseline Case

Period	Population	Housing	Single Family Detached	Multiple Family	Mobile Home
1978-79	256	86	43	34	9
79-80	50	10	5	4	1
80-81	50	0	0	0	0
81-82	80	10	5	4	1
82-83	120	30	15	12	3
83-84	260	90	45	36	9
84-85	200	80	40	32	8
85-86	190	80	40	32	8
86-87	130	50	25	20	5
87-88	130	50	25	20	5
88-89	130	50	25	20	5
89-90	170	70	35	28	7
Totals		606	303	242	61

Source: Bill Mundy & Associates, Inc.

Detailed report in Technical Appendix.

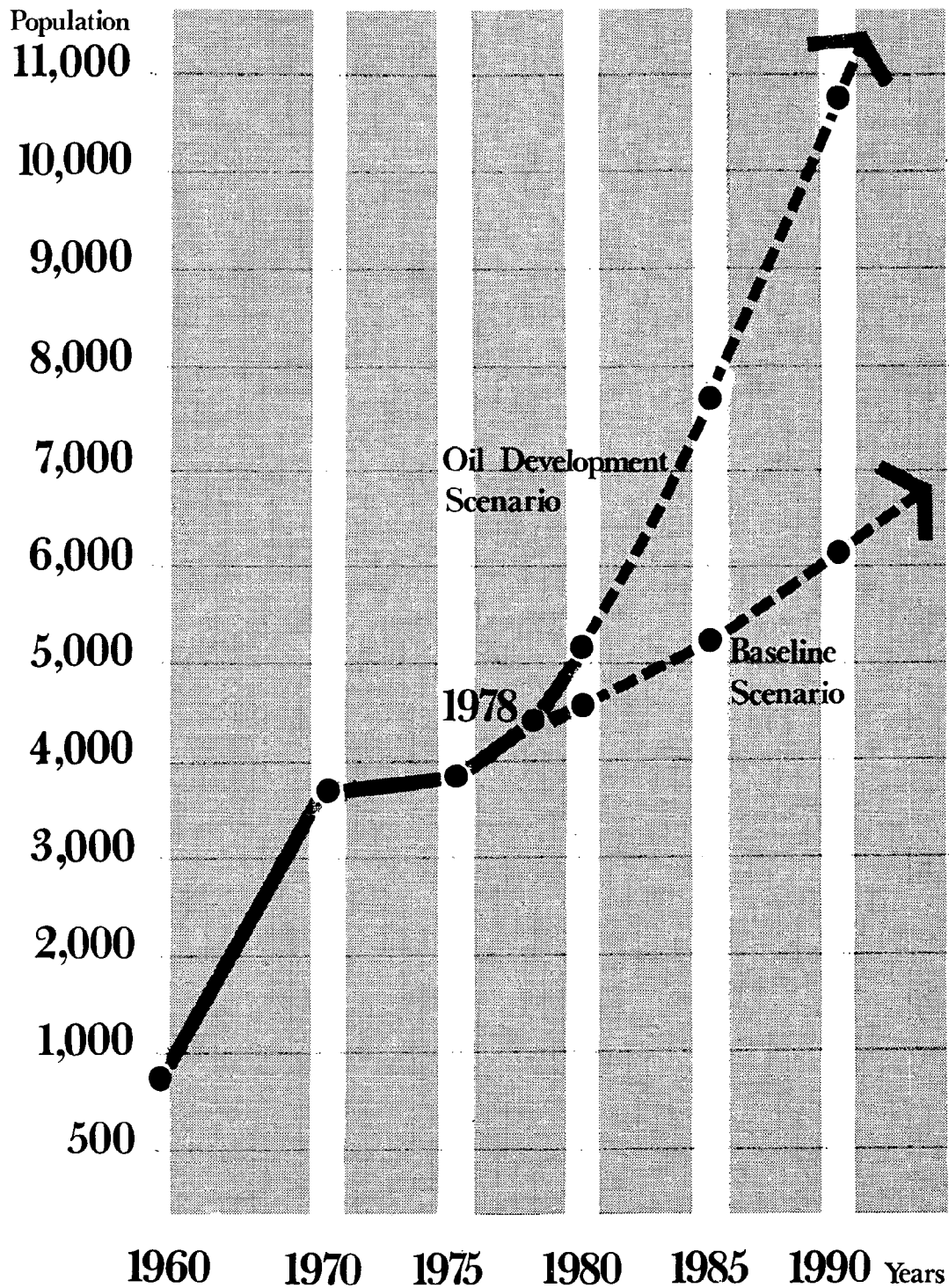
Table 4

City of Kenai
Population & Housing Change
Oil Development Scenario

Period	Population Increase	Housing	Single Family Detached	Multiple Family	Mobile Home
1978-79	50	30	15	12	3
79-80	210	30	15	12	3
80-81	10	30	15	12	3
81-82	840	210	105	84	21
82-83	440	140	70	56	14
83-84	230	130	65	52	13
84-85	1,080	300	150	120	30
85-86	980	340	170	136	34
86-87	1,670	470	235	188	47
87-88	10	160	80	64	16
88-89	0	110	55	44	11
89-90	360	<u>50</u>	<u>25</u>	<u>20</u>	<u>5</u>
Totals		2000	1000	800	200

Source: Bill Mundy & Associates, Inc.

Detailed report in Technical Appendix.



Population Forecasts
City of Kenai

Figure 7

Land Use Inventory and Analysis

The Land Use Inventory and Analysis provides a picture of a dispersed development pattern within the City limits and its varied influence areas. See Figure 8, Existing Land Use and Figure 9 Existing Old Town Area. This is due to the following primary factors:

1. Original settlement and homesteading,
2. Land in public ownership,
3. The road system,
4. Existing wetlands.

First, original settlement of the area by early traders and fishermen has, through the Homestead Act, encouraged a wide-open approach to development in recent history. Large parcels have been created in a grid pattern following existing township lines. These parcels are widely distributed in a system dividing smaller developed tracts to only a minor extent.

A second major factor influencing development within Kenai has been the extent of publicly-owned lands. At the present time, approximately 11,860 acres, or 59% of the City, is in public ownership. This ownership is, for the most part, in very large parcels around city limits. This wide distribution of public lands influences private ownership to occur in smaller pockets between large public tracts. Recent leasing of these lands for private development has influenced this trend somewhat by encouraging clusters of commercial development within the business district close to the airport. Private development outside the business district still occurs for the most part in pockets of private land.

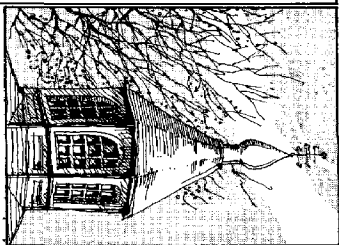
Third, the development of Kenai's road system - primarily Kenai Spur Highway, Beaver Loop Road and Kalifonsky Beach Road - as major circulation corridors, has influenced development in recent history. Existing land use maps indicate that most commercial and residential development has occurred within one-half mile of these major circulation elements.

Finally, availability of developable land has had an influence. Although an accurate mapping of the extent of all wetland areas has not yet been accomplished, some general mapping has been done relating to soils and hydrological data. Except for a few isolated parcels, most development has avoided marsh and tidal flat areas. At the present time, approximately 10,200 acres about 51% of the City have been identified as wetland areas or areas having severe slope constraints. Development costs in these areas are very high and financing for development can be difficult on soils with high water tables. However, to date, there have been an abundance of land with good soils, in the City, and development has centered in these areas.

Summary of Existing Land Use

The Land Use Inventory accounts for approximately 18,270 acres of land contained within the City limits. A considerable amount of this land, 14,510.8 acres, nearly 80 percent, remains vacant. Of the remaining 3,763.1 acres or 20 percent developed land, 1,436.7 acres or 38.2 percent is industrial (including airport uses), 1,135.6 or 30.2 percent is residential, 642.7 acres or 17.1 percent is covered by streets and roads, 193.8 acres or 5.1 percent is open space, 188.5 acres or 5.0 percent is institutional, 47.7 acres or 1.3 percent is commercial and 49.0 acres or 1.3 percent is developed with utilities.

The following Table 5 presents a summary of the existing land use inventory showing the amount of land in each major category and the proportion of that acreage to the total land area.



City of Kenai

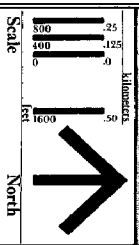
The Comprehensive Plan:

Existing Land Use

Legend:

- Parks
- Single Family Residential
- Multi Family Residential
- Commercial
- Light Industrial
- Heavy Industrial
- Elementary School
- Middle School
- High School
- Fire & Police
- Library
- Church
- City Hall
- Dock

Source: R.W. Thorpe & Associates



Prepared by:
R.W. Thorpe & Associates
Seattle/Anchorage

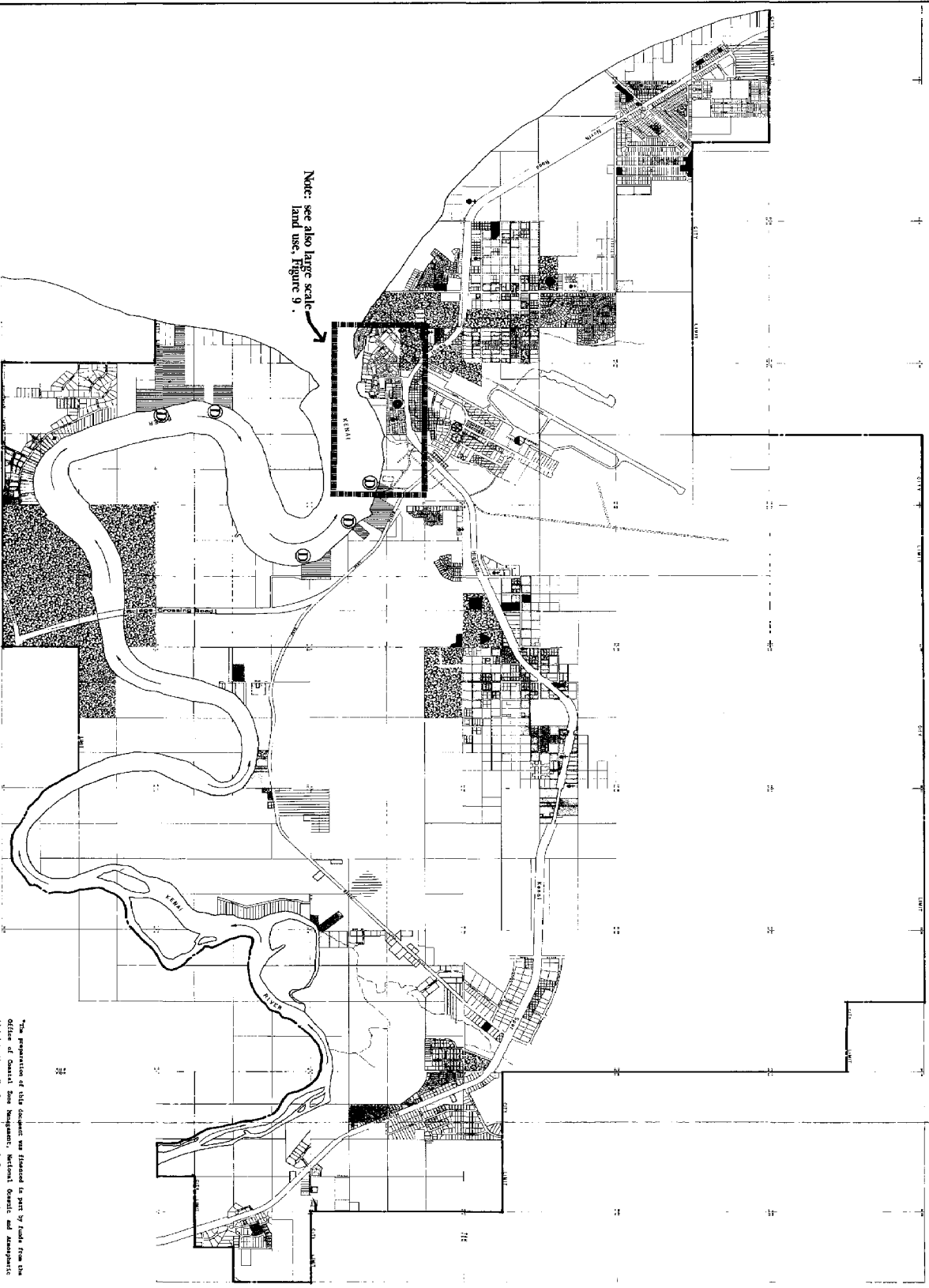
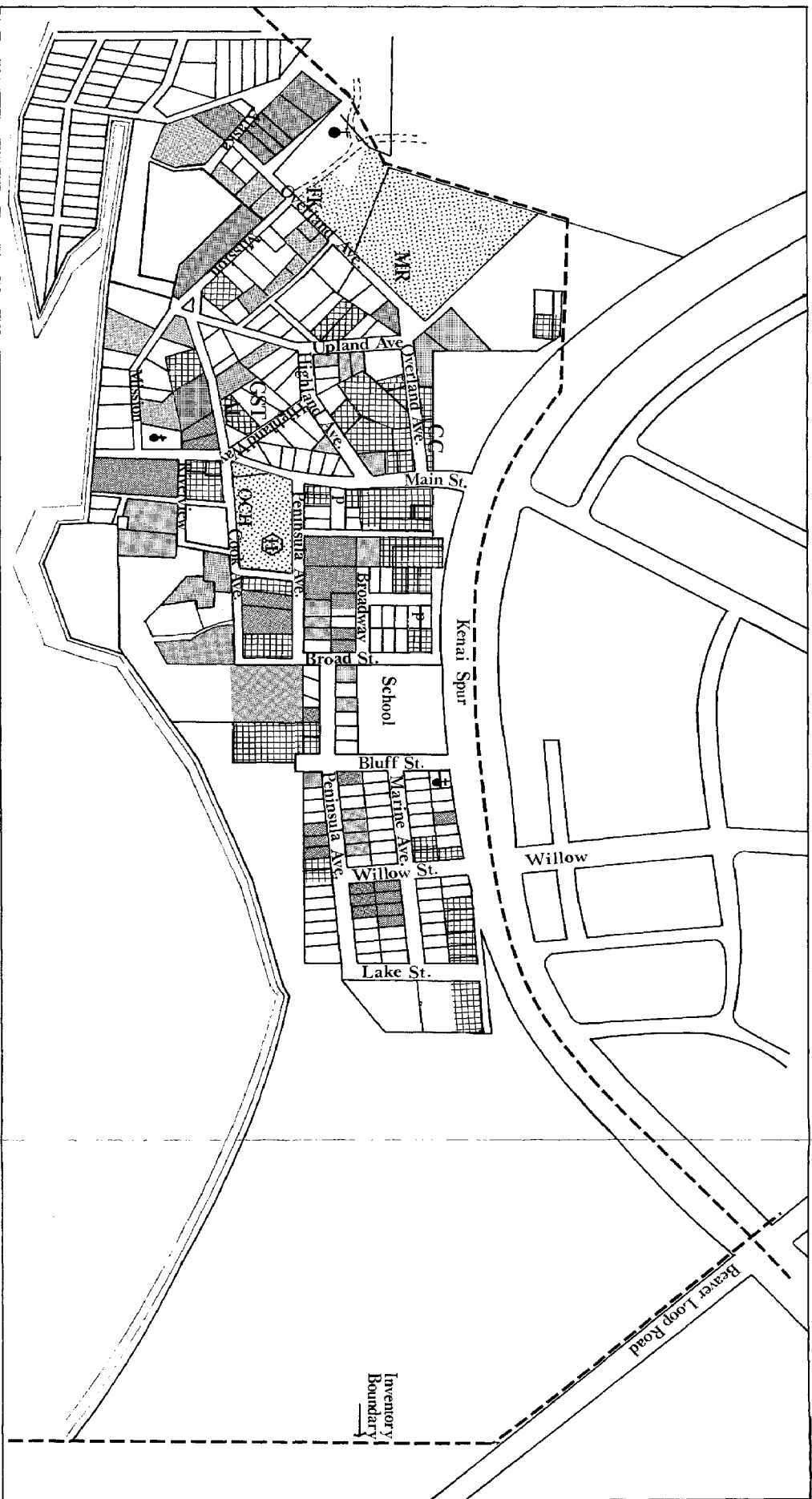


Figure 8

"The preparation of this document was financed in part by funds from the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, administered by the Division of Community Planning, Department of Community and Regional Affairs."



Legend:

- Single Family Residential
- Multiple Family Residential
- General Commercial
- Public
- Vacant
- Church
- Health
- Parking
- Chamber of Commerce
- Old City Hall
- Moose Range HQ

- AL American Legion
- GST Glacier State Telephone
- FK Fort Kenai

The Comprehensive Plan
Existing
Old Town
Area
Land Use

RW, Thorpe & Assoc.
Seattle/Anchorage

**City of
Kenai**

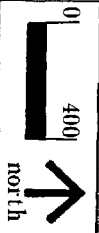


Figure 9

Table 5
SUMMARY OF EXISTING LAND USE

Use	Acres	% of Developed	% of Total
Residential	1,135.6	30.2	6.2
Single Family	985.5	26.2	5.4
Trailer	102.4	2.7	.5
Multi-Family	47.7	1.3	.3
Commercial	116.8	3.1	.6
Industrial/Airport	1,436.7	38.2	7.9
Institutional	188.5	5.0	1.0
Open Space	193.8	5.1	1.1
Streets and Roads	642.7	17.1	3.5
Utilities	49.0	1.3	.3
Total Developed	3,763.1	100.0	20.6
Undeveloped	14,510.8	-	79.4
Total Land	18,273.9	-	100.0

1. To expedite the tabulation for each parcel, all secondary uses and vacant lands are considered part of the principal use. Thus, to say 80 percent of the City of Kenai is vacant, is a conservative estimate.

Analysis of the Physical Environment

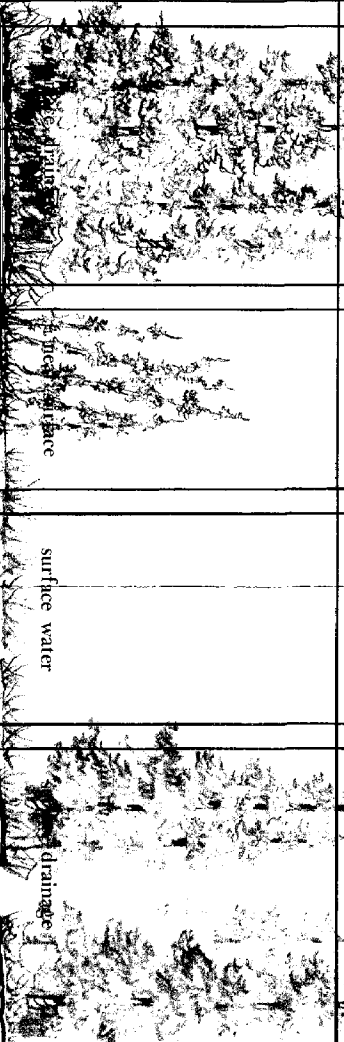
In addition to the inventory of the existing development in the City of Kenai, a detailed inventory of the physical environment was undertaken. Vegetation, soils, hydrology, geology, climate and wildlife were all evaluated as to their importance to the future development of Kenai. The analysis of the physical environment included a very extensive mapping process which concentrated its attention on the problems and potentials of the community. The physical environment of Kenai has been divided into six landscape zones: The Shoreline Zone; the Wetland (Saltwater Influence); the Cliff Zone; the Upland Forest Zone; the Muskeg Forest Zone; and the Wetland Zone (Freshwater influence). See

Figure 10. The process of mapping all the environmental characteristics of the City of Kenai resulted in a comprehensive picture of lands most suitable for building development. See Figure 11 Buildable Areas.

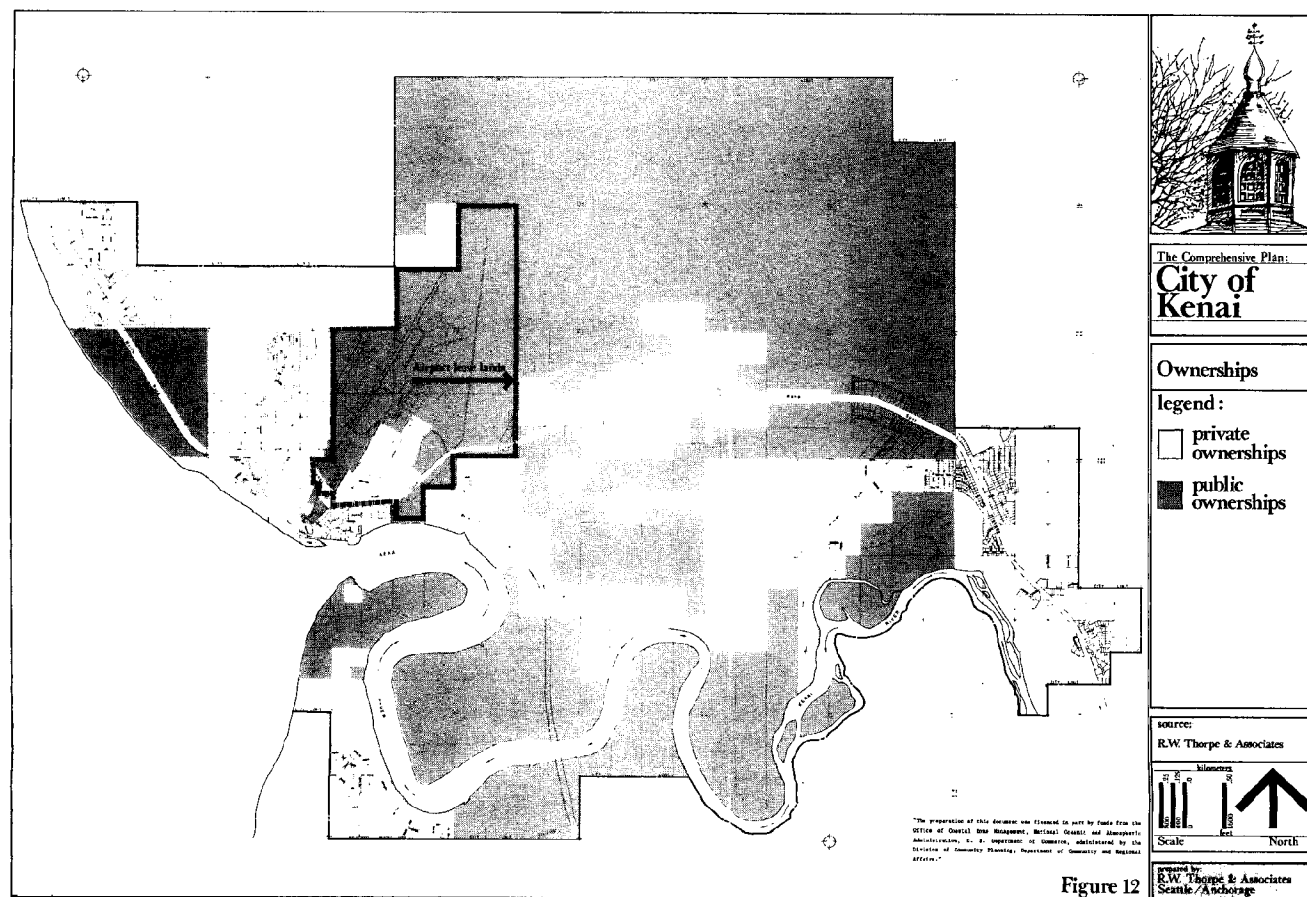
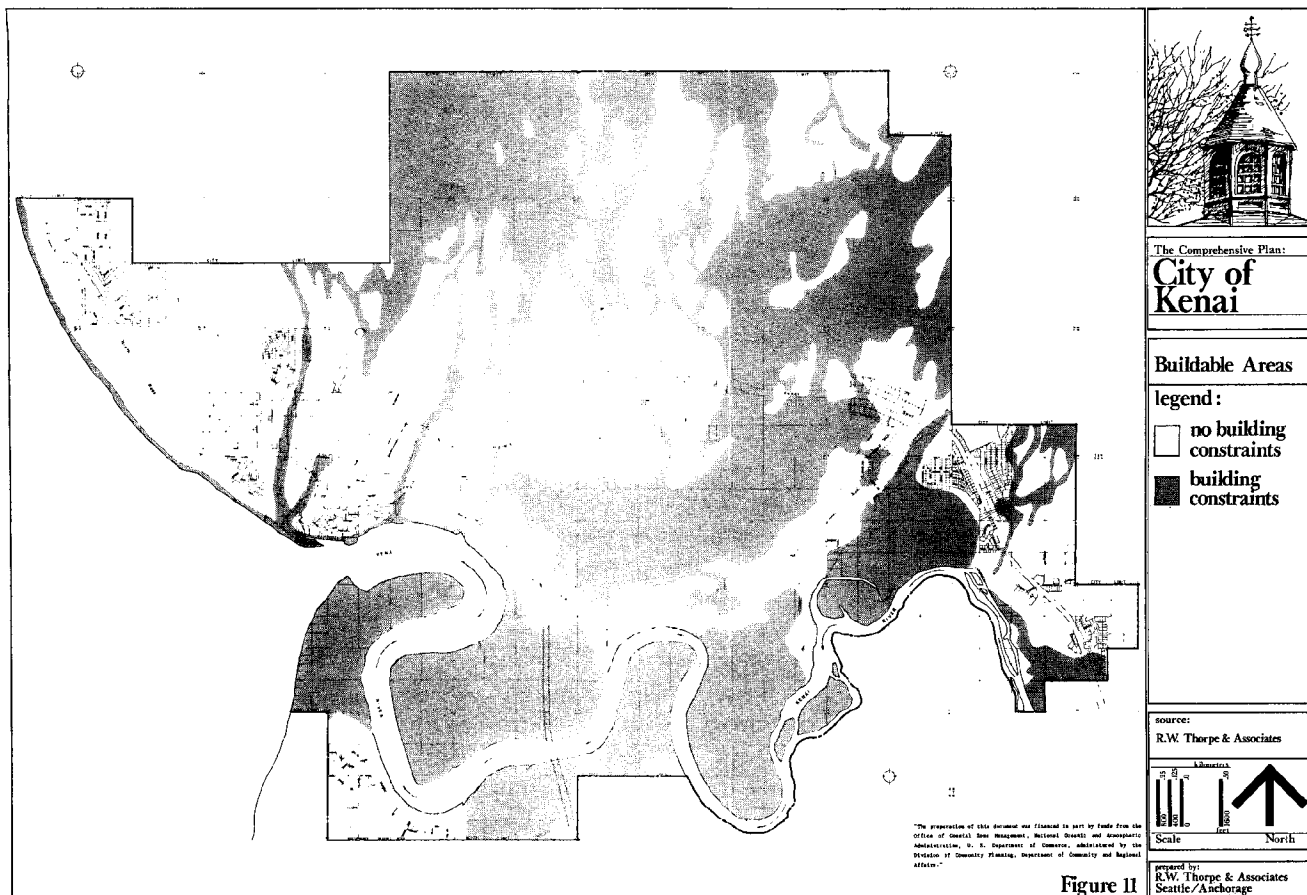
The inventory revealed that the primary constraints on future development remain the extent of wetland areas, potential steep slopes around water courses, and soils. Vegetation was viewed in relationship to its ability to be incorporated into the design of a site. The geology of the area is important in terms of identifying the shoreline cliffs, which, in certain areas adjacent to the business district, are deteriorating. Another geological hazard to be considered is the potential for earthquake damage. The inventory indicated that there are approximately 10,200 acres of land that present some constraints to future development. This represents approximately 51% of the total land area within the City limits. In contrast, there are approximately 9,700 square acres available for development, of which 3,750 acres are presently developed.

Ownerships

Ownership information within the City of Kenai was recognized as a vital element in the development of land use plans. Ownership of each parcel within the City of Kenai was inventoried on a parcel by parcel basis. Information on ownership was derived from three basic sources. First, as part of the land use inventory, the apparent ownership was noted in the field. Second, from Borough Assessor's Maps, individual parcels were identified as to their ownership status. Third, the above two sources of ownership information were further updated through the use of computer printouts from the Borough Assessor's Office. See Figure 12, Ownerships.

Shoreline Zone	Wetland (Saltwater Influence)	Cliff Zone	Upland Forest Zone	Muskeg Forest	Wetland (Freshwater Influence)	Upland Forest Zone
Wildlife salmon, attached or clinging marine animals	snow geese, teal, snipe, mink, otter	birds, mice	moose, bear, caribou, otter, mink, grouse, bald eagle	pintail, snipe, otter	snipe, mink, otter	moose, bear, caribou, grouse, bald eagle
Vegetation kelp, rockweed other algae	grasses, herbs, fungi	grasses, wildflowers	spruce, poplar, aspen	black spruce, grasses, herbs, fungi	grasses, herbs, fungi	spruce, birch, cottonwood
Hydrology tide influenced	surface water, tidal influenced	surface drainage, high erosion potential		spruce, poplar, aspen	surface water	surface drainage
Soils cobble, gravel sand, mud	peat	exposed soil, horizontal	forest litter	peat	peat	forest litter
Geology bedrock	peat 3-10-15 feet deep	gravel, bedrock	gravel or coarse sand	gravel, coarse sand	peat to 15 feet	gravel and coarse sand

Inventory of the Physical Environment Figure 10



Kenai tomorrow

Introduction to the Comprehensive Plan

The proposed Kenai Comprehensive Plan is a public declaration of the policies which will guide the actions of the legislative bodies and administrative staff. This declaration of policy is a reflection of community goals as expressed by citizens and approved by their elected representatives.

This policy declaration is useful during and after its formulation. Some of the benefits and purposes of the Comprehensive Plan and the planning process are outlined as follows:

1. The Comprehensive Plan has been designed to improve the physical, social and economic environment of the community.
2. The Comprehensive Plan will serve as a source of information for the public and government agencies covering a variety of topics. Much of this information has been formulated during the development process and published in separate reports which are merely summarized in the Comprehensive Plan itself.
3. The Comprehensive Plan will serve as a means of coordination between the public and private sectors, between different governmental agencies, and between the legislative body and its technical staff.
4. The Comprehensive Plan will serve as a method of identifying areas in need of correction and improvement as a result of technical research, inventory and the participation of citizens groups.
5. The Comprehensive Plan will serve as the best estimate of the future, an estimate that is guided by specific community goals. In other words, the plan reflects what is

likely to happen if the policies and programs outlined in the plan are followed.

6. The Comprehensive Plan will serve as a device for stimulating public interest. Most of this interest has been generated during the process which produces and updates the plan rather than the plan itself.
7. The Comprehensive Plan will serves as a method of educating the general public in matters pertaining to the future development of their community.

The functions described above are benefits to the entire community. The plan, however, has particular value to the legislative body which adopts it. Some of the ways it may be used are:

1. It serves as a policy declaration. This is the essence of the plan. Such a declaration forces attention to major issues facing the community and clearly states the policies and actions that the community intends to pursue through its governmental body.
2. It serves as a guideline for policy implementation. In this sense, it enables the legislative body to make a decision on the basis of clearly defined objectives that have been adopted. In addition, it provides continuity over time, even though there may be a change in the individual membership of a legislative body.
3. It serves as a means of conveying advice. This advice is communicated to the legislative body from its technical staff on problems which face the community and on proposals and programs for solving these problems.

The Comprehensive Plan and the planning process can play a vital role in a community. It is a method which helps insure that community resources will be used in the most efficient manner in achieving community goals. In addition, it can serve as a valuable tool for depicting, to the public and private sectors, the likely future of their community.

Goals and Objectives

Primary Goal: To create a living environment of the highest possible quality based upon the city's population growth potentials and consistent with the ecological, economic, social and physical goals and characteristics of the City of Kenai.

Organizational Goal: To employ government in a positive, creative, and responsive role by providing for citizen participation in the planning process at all levels.

Objectives:

- a. To actively and aggressively implement a public communications program as a functional part of government on an ongoing basis to better serve the public needs.
- b. To apply government solutions with restraint, recognizing that minimum government or involvement often is the best government.
- c. To avoid duplicating services in government.
- d. The Planning Advisory Commission shall hold at least one annual public hearing to review the comprehensive plan.
- e. The City of Kenai be positive, innovative and responsive in providing service at the least cost.
- f. Encourage citizen participation in formulating programs.
- g. To provide an organizational structure that will assist in delivering governmental services in outlying areas.

Social Goal: To create and maintain conditions in which all residents have an equitable opportunity to share in employment, education, health, housing and recreation as well as in the responsibilities of service to the community.

Objectives:

- a. Provide referral information relative to the basic human needs of food, clothing, housing and health care.
- b. To encourage policies and programs to prevent crime.
- c. To encourage community development that provides a mix of households of varied ages, incomes and backgrounds.
- d. To provide residents with equal opportunities to achieve an adequate standard of living.
- e. To expand and diversify opportunities for residents to develop a sense of community.
- f. Coordinate human and social services provided by various agencies to achieve maximum effectiveness.

Transportation Goal: Provide an efficient transportation infrastructure which affords a high level of mobility for area residents and provides a good accessibility to principal activity centers within the community; which guides and enhances orderly growth and development with the City; enhances the variety of transportation modes available for local travel and reduces dependency on single occupant vehicles; enhances the range of transportation modes available for regional travel to and from the City of Kenai and improves regional travel facilities such as the airport and marine port facilities; and provides adequate levels of service for both local and through travel in all modes of travel in the City of Kenai.

Objectives: Relating to these general transportation goals are a number of specific objectives for enhancement of the transportation system within the City of Kenai. The principal transportation objectives are:

- a. Develop an integrated system of well-defined streets, arterials and regional access highways.
- b. Provide an efficient transportation system which reflects and enhances the adopted land developmeent policies embodied in the Comprehensive Plan.
- c. Reduce transportation/land use conflicts through proper design of roadways and control of access along arterial streets.
- d. Reduce dependency on the automobile by encouraging high-density residential areas near commercial uses and major employment centers.
- e. Encourage policies and programs directed to the development of a comprehensive trail system integrated with parks, open space and other modes of transportation.
- f. Encourage the design of transportation facilities compatible with the natural features of the land and responsive to traffic needs.
- g. Improve the safety and capacity of the existing street and highway system in areas now developed, while minimizing the use of additional land.
- h. Provide a systematic extension of the present street system to serve developing areas.
- i. Encourage development of intrastate and marine transportation modes to serve the people of Kenai.
- j. Continue to maintain and improve the Kenai airport facilities and seek more frequent passenger and air cargo service by interstate air centers. Respond to the space needs and ground services required by the fish transit and processing industry and other airport related industries.
- k. Improve the Kenai River harbor facilities including the development of a small boat harbor, improved commercial docking facilities and medium draft capacity for port facilities, and waterfront industrial facilities.

Land Use Goal: To develop an enforceable land use plan for the community, determined by economic and social requirements of the community and consistent with the natural characteristics of the area.

1. Residential Objectives:

- a. Adopt and implement policies and programs which aid in reducing land use conflicts and nonconformities within the community.
- b. Enhance the residential community by incorporating natural open space, vegetation and trail systems, interconnected throughout the residential neighborhood.
- c. Future land development should incorporate and protect natural land forms, vegetation and scenic vistas.
- d. The City and Borough should encourage a range in choices of housing within neighborhoods.
- e. Where deficiencies exist in developed neighborhoods, the City should insure that public facilities and open space are provided to enhance the continued livability of the neighborhood.
- f. Established residentially zoned neighborhoods should be protected from the intrusion of incompatible land uses and their effects (noise, glare, dust).
- g. Residentially zoned land should be brought into balance with housing needs.
- h. Higher residential development densities should be permitted and encouraged in those areas where amenities can be provided, where the land is suited to such development, where access may be provided without constituting a hazard or overloading of residential streets, and where the development can be designed to minimize conflicts with other uses.

2. Industrial Objectives:

- a. To concentrate industrial activity in areas especially suited for intensive development.
- b. Industrial areas should have the following existing or planned characteristics:

- . A range of utilities and business services appropriate for the industry.
 - . Adequate and efficient access to major transportation systems without reliance on residential streets.
 - . The existence of major natural or man-made barriers or buffers that separate industrial areas and their effects from other existing or anticipated noncompatible land use.
 - . Supporting business services which complement industrial use should be encouraged.
- c. Resource extraction areas should not necessarily be classified industrial; this use should be treated as a temporary special exception with conditional use permits.

3. Commercial Objectives:

- a. Commercial development should be concentrated at strategic locations, rather than allowed to expand along major arterials.
- b. Promote the development of Kenai Central Business District.
- c. In locating commercial uses, criteria should be considered such as accessibility, existing or planned utilities and facilities, suitability of terrain and environment, and the location of existing or proposed compatible or complementary uses.
- d. Major commercial developments should be planned to encourage and permit the greatest level of accessibility for a variety of transportation modes, including pedestrian movement to and within such development.
- e. Neighborhood centers should be established with convenience shops trading in those goods and services required on a day-to-day basis by the population of the immediate area.
- f. Commercial areas should have the following existing or planned characteristics:
 - . A range of utilities and business services appropriate for the category of development.
 - . Adequate and efficient access to major transportation systems without reliance on residential streets.

- . Adequate off-street parking.
 - . The existence of major natural or man-made barriers that separate commercial areas and their effects from other existing or anticipated noncompatible land use.
 - . Supporting business services, which complement commercial use should be encouraged.
- g. Commercial planned unit developments shall be encouraged in all categories which provide for a mixture of uses, and shall be required in the case of major developments.
4. Natural and Man-Made Hazards:
- a. To protect the public from natural and man-made hazards and nuisances by:
 - . Regulating development of those lands which, if improperly developed, would be hazardous to the health, safety or property of individuals in the community.
 - . Minimizing potential hazards from development on unstable soils.
 - b. To minimize the possibility of structural damage or failure and excessive public installation and maintenance costs resulting from building on unstable soils, the City should insure that development will avoid such areas unless adequately designed and engineered.
 - c. Provide for proper stormwater drainage and detention where appropriate to mitigate impacts of peak storms and spring run-off.
 - d. Developers should be encouraged to utilize marginal lands by incorporating them in their development plans as open space and less intensively-used areas.
5. Community Utilities:
- a. Utility installation should be coordinated to achieve savings and prevent conflicting utility placement.

- b. The priorities for the scheduling, design, and installation of public utilities should be in accordance with the comprehensive development plan and capital improvements program.
- c. Where development is proposed in areas beyond the planned extensions of public services, the City shall carefully relate the uses and densities to site characteristics in order to preclude future water pollution, inaccessibility or emergency services problems.
- d. Minimize extension of utilities through areas which are to be preserved for recreation or are defined as wetlands, steep slopes, floodplains or hazardous lands.
- e. Municipal utility systems should be extended only to those areas where it is economical to provide both sewer and water and where residential densities including and greater than 1-5 units per acre can be reasonably anticipated and accommodated within an entire planning community.
- f. Where the economic extension of both sewer and water utilities is feasible and where natural site limitations exist relating to soils, topography and water, on-site systems and land development practices should be related to the general capacity of the area to accommodate such systems.
- g. Where on-site utility systems are required and where natural site limitations exist, community utility systems and clustering of dwelling units may be required.
- h. New methods of treating and disposing of on-site sewage should be actively sought. When perfected, these new systems should be required by the City where public sewers are not available.
- i. When utilities are installed, they should be designed with capacity to meet planned land use intensity.
- j. Conservation of energy should be encouraged by the public utilities through a rate structure which rewards conservation.

6. Coastal Zone Management:

- a. To develop a plan for the orderly regulation and development of the coastal zone within the City, while recognizing that all of Cook Inlet is an integrated unit and part of the entire coastal resources of the State.
- b. To adopt and implement policies and programs which will protect and enhance the unique natural features of the coastal zone.
- c. To cooperate with the State and Borough Governments in formulating policies for the entire coastal zone of the State.

Housing Goal: To encourage access to safe, decent, affordable housing, providing a socially and structurally sound housing resource.

Objective:

- a. Guidelines should be established which would allow smaller planned unit developments and subdivisions to be processed solely by administrative review.
- b. Zoning, subdivision and building requirements should be reviewed to determine if changes in these requirements could be made which would lower housing costs, while maintaining housing quality.
- c. Zoning incentives, such as permitting density increases, should be created to encourage an increase in the quantity of housing, particularly for moderate income groups, as well as an improvement in the quality of housing.
- d. Housing code enforcement of buildings (4-plex or larger) should be upgraded and systematized with a view to maintenance of the existing housing stock.

Environmental Goal: To ensure that the natural environment is enhanced, maintained, and protected by establishing high quality standards for the protection of soil, vegetation, air, water, sound and sight with appropriate surveillance and enforcement of these standards.

Objectives:

- a. Encourage activities that preserve existing and promote more vegetation in the urban area.
- b. Establish criteria for controlling unacceptable noise levels and establish programs to implement and enforce these criteria.
- c. Establish standards for water quality with appropriate surveillance and enforcement to insure that there will be no significant deterioration below current levels and so that there will be improvements in quality.
- d. Establish policies to protect water recharge, watershed and floodplain areas.
- e. Conduct environmental education to enhance understanding of the inseparable relationship between human well-being and environmental quality.
- f. The impact of development proposals on wildlife habitat areas should be evaluated.
- g. High-quality wetlands and marshes should be identified so that they might be protected and preserved as open space.

Central Business District Goal: To promote a people-oriented central business district as the focal point of Kenai with a full-range of urban uses, activities, and shopping opportunities.

Objectives:

- a. Promote a mixture of financial, retail, cultural, recreational, government and office oriented development in the CBD.
- b. Encourage the preservation of historical resources in the original townsite area.
- c. Develop the central business district to a human scale, keeping in mind the relationship between open space, structures and pedestrian movement, safety and comfort.
- d. Provide a balance of parking facilities within, adjacent to and surrounding the CBD.
- e. Develop better access to and around the CBD.

Recreational Goal: To provide a wide range of cultural and recreational opportunities to all segments of the community.

Objectives:

- a. In providing for park and recreation needs within individual communities, a balance between development and acquisition will be emphasized, except that where minimum standards of park and acquisition have not been met, special emphasis will be placed on acquisition.
- b. Expand parks system to provide for balance between neighborhood, major sports facilities, passive recreation and tourist needs.
- c. Provide for usable publicly-owned open space.
- d. To promote use of geological hazard areas and marginal lands for parks, recreation and open space.
- e. To encourage the implementation of active recreation and cultural programs within publicly-owned lands and facilities.
- f. Establish greenbelts along the major streams in the City, however, the City will not embark on a course of obtaining title or allowing unrestricted access to all such waterways.
- g. Park, recreation and community facilities should be combined with school sites, where feasible, in order to best serve residents of the area and reduce costs.

Educational Goal: To provide a full choice of educational opportunities to all segments of the community, utilizing all community facilities and programs to maximum vantage.

Objectives:

- a. To meet the educational needs of children, alternative school, special education and other innovative programs shall be encouraged.

- b. To encourage full-time recreational and educational programs using present school facilities and community buildings.
- c. To meet the educational needs of adults.
- d. To insure that adequate land be made available for educational facilities through advanced site acquisition.

Economic Goal: To encourage a broadly based economy focused on clean industry, which provides opportunities for employment and economic growth while accounting for the full cost of development.

Objectives:

- a. Work to increase employment opportunities.
- b. Develop indices to measure economic, social and environmental cost of growth and major developments, including social and environmental programs; keep them current and well publicized, and insure that they be considered in every decision.
- c. Periodically examine taxation and assessment policies to insure that they complement municipal goals and objectives.

Identification of the Elements of the Comprehensive Plan

The Kenai Comprehensive Plan is a physical as well as a policy plan. The plan is made up of four elements: land use, community facilities, transportation and the business district. These elements, working together, are central to the community of Kenai and establish the parameters of the Comprehensive Plan. The planning of these elements encompasses the interrelationships that must exist throughout the development of the total Plan if the result is to reflect the kind of community that the citizens of the City of Kenai desire. Fundamental to the elements of the Comprehensive Plan and to the citizens of the City is the physical environment; plans and policies that recognize the unique character of Kenai's physical environment and work to preserve this existing character are basic to the elements and alternatives that are presented in this Land Use Plan. Thus, the desire throughout the entire process is to permit the community's development of social,

residential and industrial activities while maintaining the unique physical character of the community. Included within the Plan are recommendations for decision-making on all matters relating to the physical and human environments in the future.

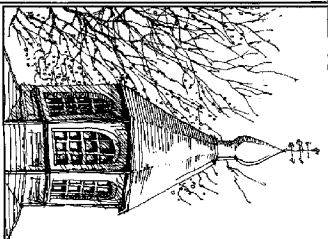
The Land Use Alternatives

Present land use planning within the City of Kenai has developed, for the most part, over the last twenty years. Initial comprehensive planning efforts were undertaken in 1964 by the Alaska State Housing Authority. This plan was updated by the same organization in the late 1960's and again in the fall of 1970. Further modification was provided by the Goals and Objectives Report 1973-1974. These latter two efforts were adopted by the Borough Assembly on December 17, 1974. Except for some minor changes, these plans have been followed, although the 1964 plan did present an inventory of many of the environmental factors which do not appear to be reflected in the Plan. The 1964 Plan emphasized existing land use patterns rather than environmental factors.

The land use alternatives evaluated in the development of the Comprehensive Plan are based on existing development trends as well as environmental factors that may influence future growth. The primary considerations of the proposed Land Use Plan are to accommodate projected growth to the year 2000 as well as protect those natural features that are unique to the City of Kenai. The land use alternatives considered presented some new and significant changes, primarily on lands in public ownership. For the most part, the underlying land use in residential density patterns has not been significantly changed from the present zoning. However, new categories have been added which encourage neighborhood businesses and industrial parks.

The Conservancy Designation

The proposed land use Plan is presented in Figure 13. A significant addition to the proposed Land Use Plan is the application of a Conservancy Zone to public lands with severe building constraints. Additionally, the concept of a Conservancy Overzone has been applied to



The Comprehensive Plan:

City of Kenai

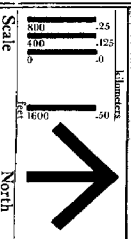
Land Use Map

Legend:

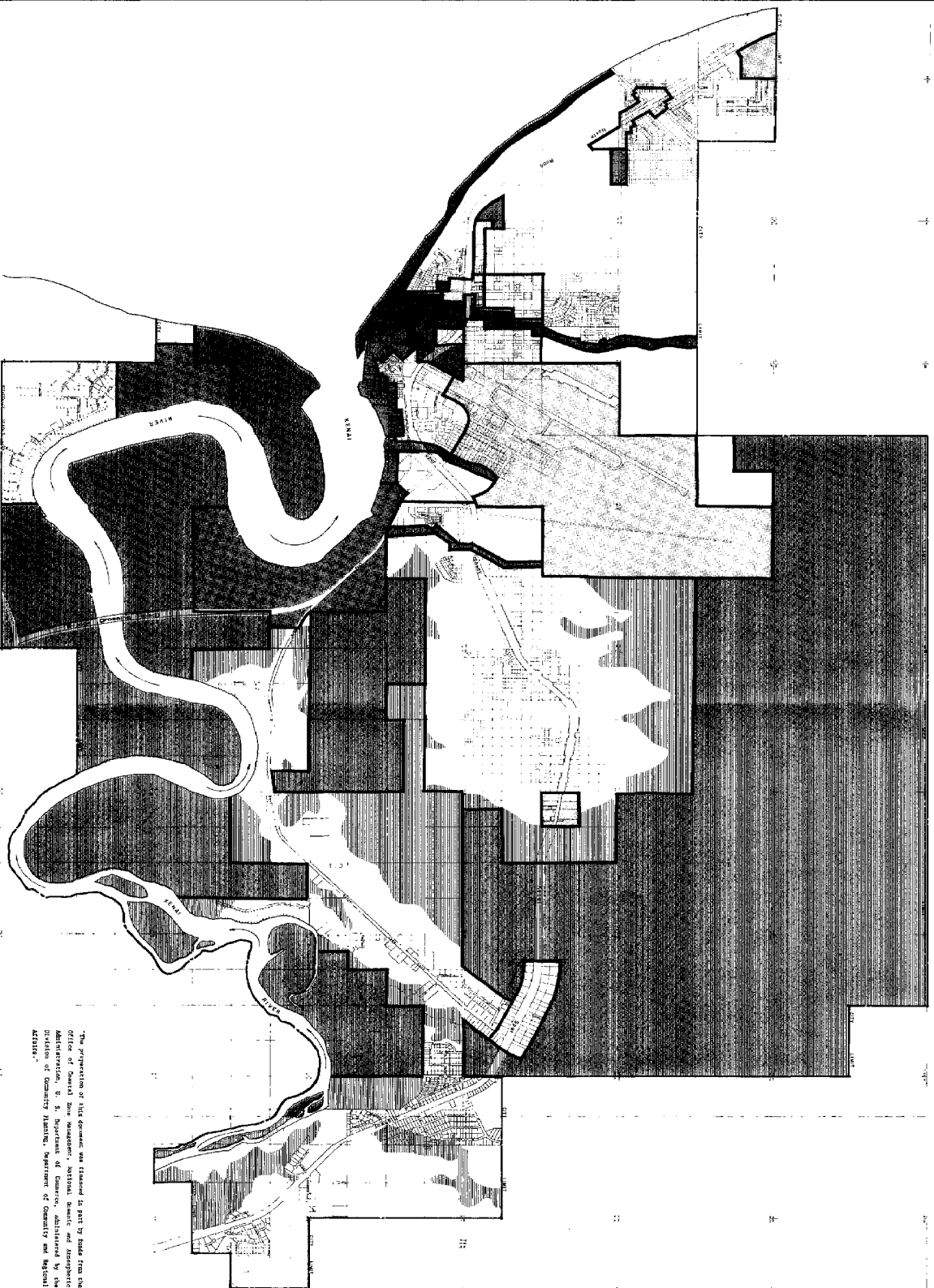
- Conveyance
- Conveyance Overlay
- Low Density Residential
- Medium Density Residential
- Medium-High Density Residential
- High Density Residential
- Neighborhood Business
- General Commercial
- Office/Manufacturing Park
- Heavy Industrial

Source:

R. W. Thorpe & Associates



prepared by:
R.W. Thorpe & Associates
Seattle / Anchorage



"The preparation of this document was financed in part by funds from the office of Coastal Zone Management, National Science and Atmospheric Administration, U. S. Department of Commerce, administered by the Division of Community Planning, Department of Community and Regional Affairs."

Figure 13

private lands which contain building constraints requiring special considerations.

The elements that establish the conservancy zones are the existence of wetlands, soils, slopes and geologic hazards, as defined in the inventory phase. As was illustrated in Figure 14, severe building constraints were identified within both Fresh and Saltwater Wetland Zones and the Cliff Zone. Limited building constraints were identified within the Shoreline Zone and Muskeg Forest Zone. No major building constraints were identified within the Upland Forest Zone.

Most publicly owned land holding severe or limited development constraints has been identified as Conservancy. Privately owned land with severe or limited building constraints has been indicated as needing special building considerations. Most of the Conservancy occurs on publicly owned property i.e., City, Borough or State, and remains largely undeveloped. Approximately 7,950 acres are designated Conservancy and in public ownership and approximately 2,050 acres, are in private ownership.

The purpose of the Conservancy designation is outlined below:

1. To recognize building constraints caused by the wetland areas and soil limitations, severe slopes and drainage ways.
2. To recognize the importance of the wetland areas in terms of aquifer recharge and the water supply of the City of Kenai and local industries.
3. To recognize the importance of the Kenai River and its ecology as an economic asset to the viability of the fishing industry.
4. To encourage development in areas where there are few building constraints in order to accommodate the projected growth of the community as expressed in economic projections.

Thus, two basic actions will be involved in the proposed Land Use Plan:

1. All City, State and Federal lands which have been identified as having building limitations will be designated Conservancy.
2. All lands in private ownership will retain the equivalent of their present zoning. However, a Conservancy Overzone will be applied to those private lands with building constraints, and special construction techniques will be required.

Certain types of development in either Conservancy Zone will not be preempted. Uses will be permitted within the publicly-owned Conservancy lands by Conditional Use Permit, including most recreational activities and certain other regulated activities such as resource extraction. All land uses would have to meet Federal, State and local standards in order to maintain the integrity of the natural environment. Land uses proposed on private lands within the Conservancy Overzone area would be permitted provided certain performance standards were met. For example, in the area of residential development, most of the wetland areas are now zoned Rural Residential and would accommodate low density development. However, most of these areas are not served by sewer or water; therefore, an on-site sewer disposal system as well as water system would be required in order to construct a residential subdivision in a Conservancy area, and the applicant would have to obtain approval from the local health district, indicating the capability of soils to accommodate an on-site sewage disposal system.

Residential Uses

The residential category of the Land Use Plan contains three basic densities - low, medium and high. Low density areas (one to two units per acre) are designated in areas of the community not presently served by City sewer and water. Areas located near existing sewer and water have been designated medium (three to nine units per acre) and high (over ten units per acre) density.

**Shoreline
Zone**

**Wetland
(Saltwater Influence)**

**Cliff
Zone**

**Upland Forest
Zone**

**Muskeg
Forest**

**Wetland
(Freshwater Influence)**

**Upland Forest
Zone**

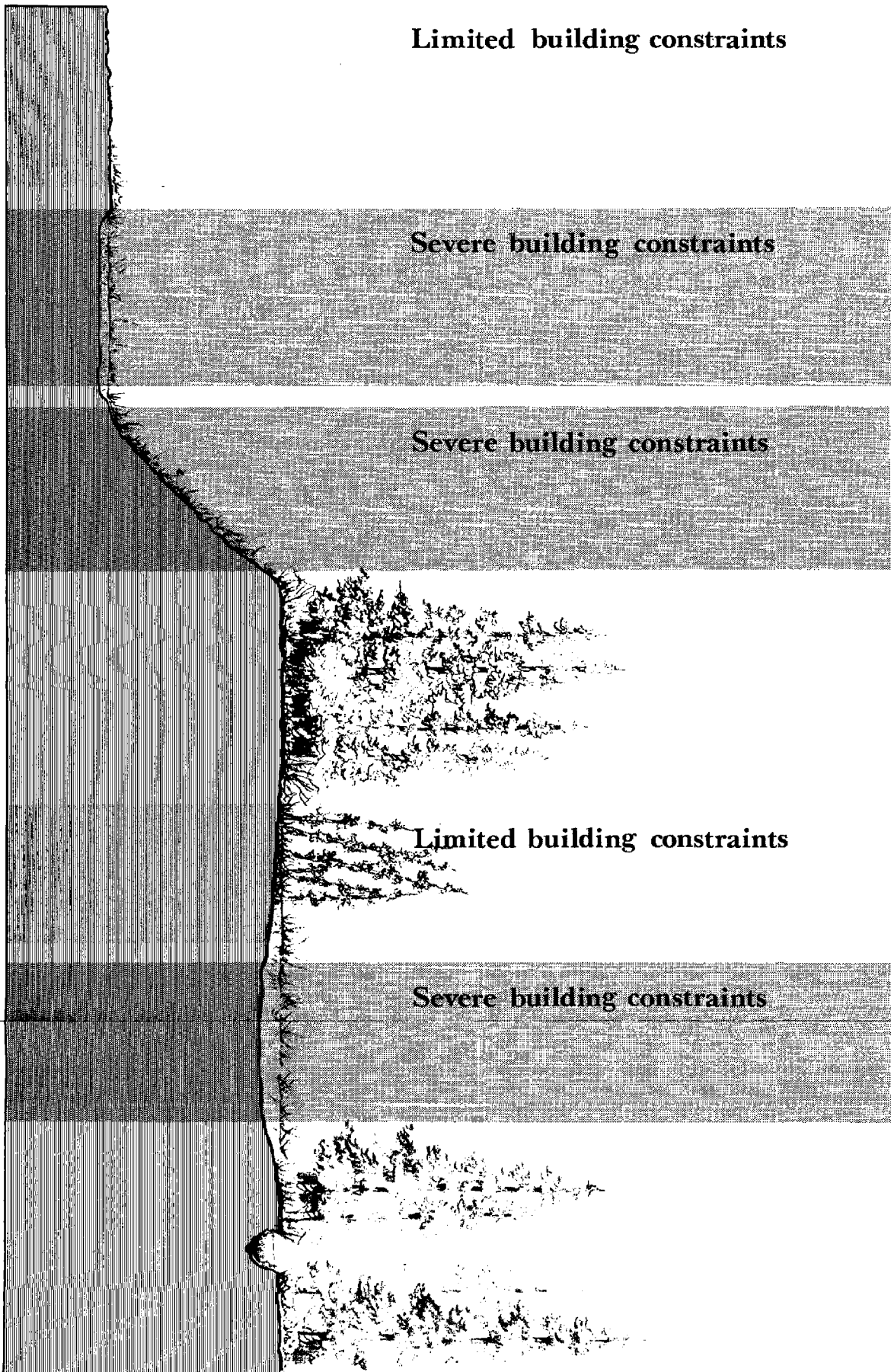
Limited building constraints

Severe building constraints

Severe building constraints

Limited building constraints

Severe building constraints



Landscape Zones Figure 14

Housing development within the different density areas would reflect, to a large degree, the existing trends in different parts of the city. High density areas would reflect intensive multiple-family and townhouse development. Medium density areas would reflect a pattern of predominantly single-family development with some degree of two-family and multiple-family development. The low density areas would reflect a predominantly single-family pattern. These predominant patterns would not necessarily be exclusive, however, especially in the case of multiple-family development in the medium and low density areas. Since a goal of the plan is to encourage a range of choice of housing within neighborhoods, multiple-family dwellings (and to a certain extent, mobile homes) should be permitted within all density areas of the City. The principal concerns will be the overall density of the area as established in the plan, and the compatibility of different housing forms to each other, and how this compatibility can be insured. To this extent, provisions should be made in the zoning ordinance to permit multiples as a part of a Planned Unit Development in normally single-family areas, subject to site and density controls that will protect adjacent residential development and lands.

In addition to the densities outlined above, Kenai has been divided into five neighborhoods - West Kenai, Central Kenai, East Kenai, Beaver Creek and the South Kenai neighborhood, Figure 15. West Kenai, Central Kenai and East Kenai have been identified as primarily medium density neighborhoods. High density areas have been included in each of these three neighborhoods adjacent to neighborhood business areas. The Beaver Creek and South Kenai neighborhoods have been designated as primarily low density, single-family areas, because of the absence of city utilities. These neighborhoods are also separated geographically from the more central neighborhoods.

The Conservancy Overzone described in the previous section established what is called the "carrying capacity" of each neighborhood. Carrying capacity can be defined as an area's ability, given certain environmental constraints, to accommodate development. Given a neighborhood's

carrying capacity, one can calculate the approximate total number of dwelling units that can be built. This concept is called "holding capacity." The following table 6 shows the total acreage by neighborhood of developable lands for residential use, (carrying capacity). The proposed Land Use Plan, the Army Corps of Engineer's Wetlands Map and the Neighborhood Plan were used in making the following computations:

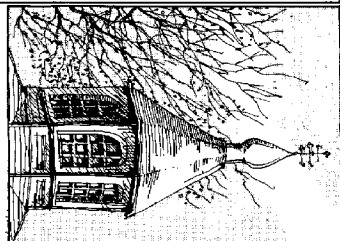
Table 6
CARRYING CAPACITY
(RESIDENTIAL LAND USE BY NEIGHBORHOOD IN ACRES)

Residential Use	NEIGHBORHOODS					Total
	South Kenai	West Kenai	Central Kenai	East Kenai	Beaver Creek	
Overzone	75	-	-	1,021	1,510	2,606
Low Density	265	-	-	8	1,605	1,878
Medium Density	-	1,784	47	882	-	2,713
High Density	-	28	65	20	-	113
Total	340	1,812	112	1,931	3,115	7,310

Holding capacity, the approximate total number of dwelling units that can be built with the densities proposed and building constraints, as shown on the following Table 7 was derived from the acreages identified in Table 6.

Table 7
HOLDING CAPACITY
(NO. OF DWELLING UNITS ALLOWED)

Residential Use	NEIGHBORHOODS					Total
	South Kenai	West Kenai	Central Kenai	East Kenai	Beaver Creek	
Overzone	81	-	-	1,112	1,644	2,837
Low Density	577	-	-	16	3,495	4,088
Medium Density	-	8,096	213	4,002	-	12,311
High Density	-	167	391	120	-	678
Total	658	8,263	604	5,250	5,139	19,914



The Comprehensive Plan:

City of Kenai

Neighborhood Plan

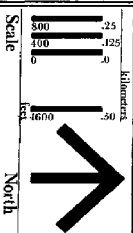
Legend:

----- Neighborhood Boundary

* These areas function as a part of the adjacent neighborhood



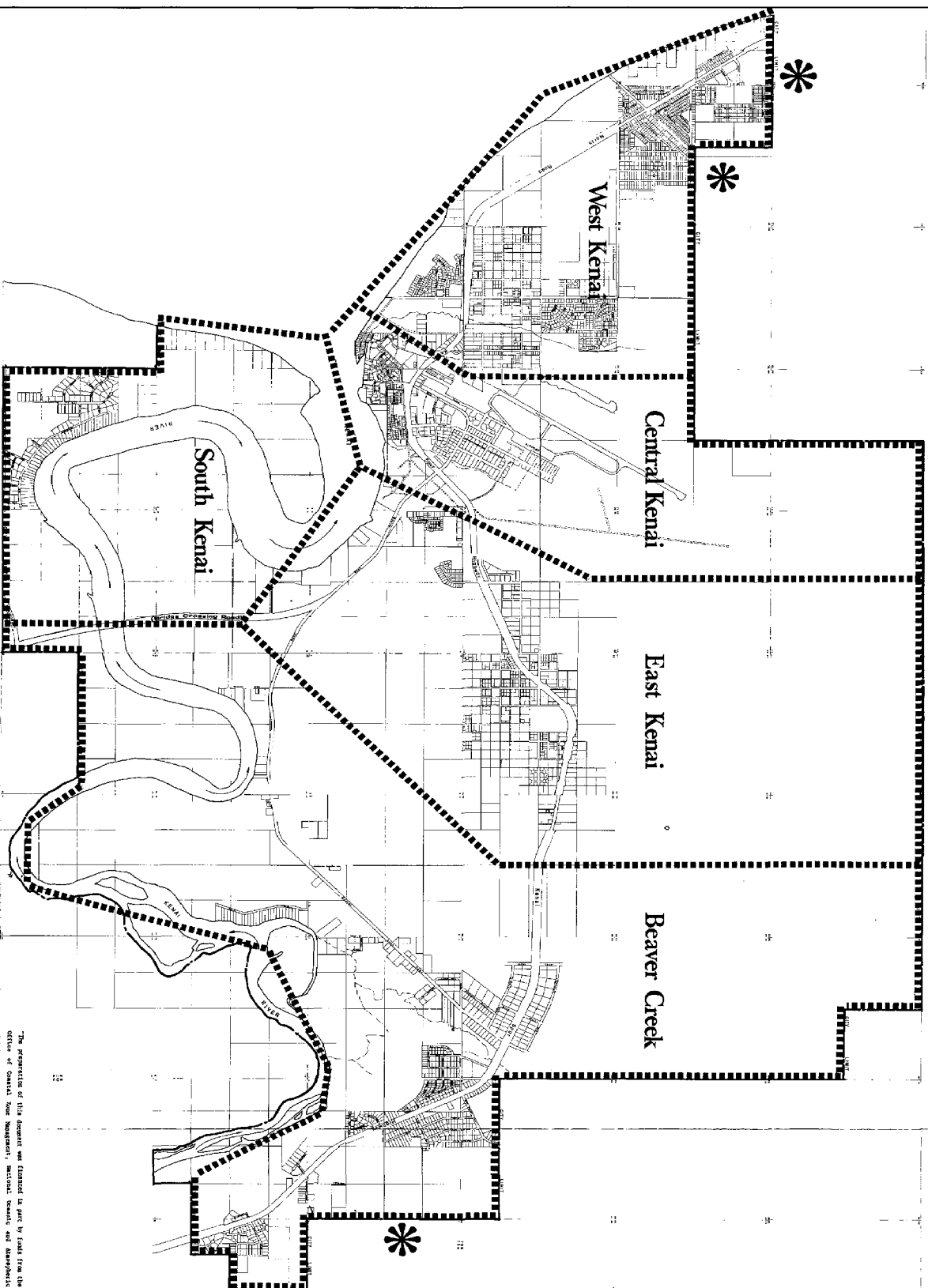
Source:
R.W. Thorpe & Associates



Prepared by:
R.W. Thorpe & Associates
Seattle/Ancorage

The preparation of this document was financed in part by funds from the Division of Coastal Zone Management, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, authorized by the Division of Community Planning, Department of Community and Regional Affairs.

Figure 15



The holding capacity was computed by assuming that the minimum lot area for the high density residential district was 7,200 square feet, 9,600 square feet for the medium density district, 20,000 square feet for the low density district and 40,000 square feet for residentially zoned districts with questionable building constraints, with area deductions for access.

If these neighborhoods were fully developed, the total population would be as follows, in Table 8 assuming an average of 3.2 persons per household. Table 9 has also been included which relates expected growth by neighborhood.

Table 8

PROJECTED POPULATION

Residential Use	NEIGHBORHOODS					Total
	South Kenai	West Kenai	Central Kenai	East Kenai	Beaver Creek	
Overzone	259	-	-	3,558	5,260	9,077
Low Density	1,846	-	-	51	11,184	13,081
Medium Density	-	25,907	681	12,806	-	39,394
High Density	-	534	1,251	384	-	2,169
Total	2,105	26,441	1,932	16,799	16,444	63,721

Table 9

EXPECTED POPULATION BY NEIGHBORHOOD, 1990

Mundy-McCrackin & Associates, 1979

	South Kenai	West Kenai	Central Kenai	East Kenai	Beaver Creek	Total
	640	4,270	400	2,680	2,680	10,670

It is reasonable to assume governmental regulations and high building costs in areas with questionable building constraints will limit development in much of the East Kenai and Beaver Creek neighborhoods. Consequently, the West Kenai neighborhood accommodates almost one-half

of the land available for residential development the proposed Comprehensive Plan Map. This area can also be expected to accommodate nearly one-half of the population growth.

The City of Kenai, with the densities proposed, could accommodate approximately 20,000 dwelling units total and a population of 60,000 people. Kenai's population in 1990 is estimated to be 10,670 according to the optimistic projection given in Mundy-McCrackin's oil development scenario in the Economic Base Analysis.

The five neighborhoods identified are described below:

1. The West Kenai neighborhood is bordered on the west and south by Cook Inlet, on the north by the City limits and Wildwood Air Station, and on the east by the major drainage way through Kenai Municipal Park. The West Kenai area is expected to accommodate much of the City's residential development in the future. The neighborhood is presently served by both sewer and water, with sewer extensions planned north, along the Kenai Spur Highway. The carrying capacity of this area is considered excellent. Environmental constraints include the major drainage courses and the sea cliffs along Cook Inlet. It is proposed that drainage courses be designated as Conservancy and that extensive setbacks be required adjacent to all sea cliffs. The West Kenai neighborhood is served by two neighborhood business areas, one at the intersection of Wildwood and Kenai Spur Highway and the second east of the intersection of Forest Drive and Kenai Spur Highway. The Land Use Plan encourages neighborhood and convenience-oriented commercial development in this area with medium density residential development occurring as an intermediate land use between business and single family areas. The holding capacity of this area is approximately 8,000 dwelling units and a population of 26,000. Expected 1990 population is 4,270. Thus, an additional grade school and satellite fire station will be necessary, and are so indicated by general locations within Section 36.

2. The Central Kenai neighborhood is bounded on the north by the City limits, on the west by a drainage course through Kenai Municipal park, and on the east by the drainage course that skirts the airport and empties into the Kenai River south of the Port District. The neighborhood can accommodate approximately 600 dwelling units and a population of 1900. Expected 1990 population is 400.

The bulk of the Central Kenai neighborhood is in commercial and industrial development. A specific plan for the development of the Business District is presented in the next chapter. Most of "Old Kenai" has been designated for either commercial or high density residential and existing land use trends reflect these land use categories. The residential neighborhood of the Central Kenai area is distinctly medium to high density. At the present time multiple-family residences in these areas are haphazard and do not take full advantage of the many design opportunities available to their location. Residential units built fairly close to the shore cliff represent a significant hazard to the safety of the residents of the community; therefore, the proposed land use plan would establish a 100 foot setback requirement. The setback would apply to all proposed and new developments in the area.

It should be noted that the area near "Old Kenai" is presently rich in historical opportunities, including the Russian Orthodox Church, Old Fort Kenai, Moose Meat John's Cabin and the Old City Hall. These landmarks should be recognized by future development and, wherever possible, enhanced by adjacent development.

3. The area identified as East Kenai is bounded on the west by the drainage course that empties into the Kenai River at the Port of Kenai, on the east by a large wetland area, on the north by the city limits, and the south by the Kenai River. East Kenai is presently being served by water and sewer and has a holding

capacity of approximately 5,000 dwelling units and a population of 17,000. Projected 1990 population is 2,680. The neighborhood is not now served by an elementary school, however, an additional one is proposed in the vicinity of the junior high school and high school. A major commercial shopping area has been planned at the intersection of Beaver Loop Road and the Kenai Spur Highway. This will supply neighborhood convenience, community service, and regional shopping opportunities. Another neighborhood shopping area should be planned on the eastern boundary of the neighborhood. Recreation facilities in the neighborhood are good, excepting "the Dustbowl" which needs extensive improvements in both parking and play areas. (See Parks Section). Residents south of the Kenai Spur Highway now use recreational facilities at the high school, junior high school and proposed new grade school. In addition to these recreation facilities, the extensive amount of conservancy-zoned land surrounding the neighborhood should provide a significant amount of outdoor recreation.

4. The Beaver Creek neighborhood is bounded on the north by a major wetland area, on the east by the city limits, and on the south by the Kenai River and the Kenai City limits. This neighborhood can further be divided into two sub-areas, neither served by sewer. The northern sub-area, closest to the intersection of Beaver Loop and the Kenai Spur Highway is planned for low density residential uses, with a significant neighborhood commercial area planned at the intersection of these two arterials. This commercial area will service the northern part of the community and a portion of the East Kenai neighborhood. The southern sub-area will be served by a neighborhood commercial area at the present site of the Eagle's Lodge. The total holding capacity of the Southeast Kenai neighborhood is approximately 5,000 dwelling units, or a population of 16,000. Expected 1990 population is 2,680. Given this potential population, an elementary school site should be planned, along

with a neighborhood park and consideration of a satellite fire station.

5. The South Kenai neighborhood is not served by sewer or water and has a holding capacity of approximately 700 dwelling units and a population of 2,000. Expected 1990 population is 640. Given 1990 development of the South Kenai beach area, a neighborhood park should be planned including childrens play areas, tennis, picnicking and softball facilities.

The remaining areas of the City of Kenai now identified as Rural Residential have been designated within a Conservancy zone, i.e., all of the wetland areas defined by the consultants, the shore cliff areas adjacent to Cook Inlet and major drainage course areas that define neighborhoods.

Use of City-Owned Land

One of the important questions being faced by the City of Kenai today is that of use and/or disposition of the large amount of land now in City ownership. When City residents who participated in the attitude survey were asked how City-owned property should be disposed of, there was a three way split among those who felt that the land should be retained in public ownership and undeveloped; converted to private ownership and developed; or retained in City ownership and allowed to be developed within certain parameters. Recent policy decisions by the Planning Commission and the City Council indicate that the sale of certain properties to private ownership is desirable and in certain areas, such as Section 36, specific development plans should be considered. Aside from Section 36 parcels, there are three other developable areas in City ownership which are extremely important: first, the area close to the airport, most of which is ideal for some commercial or industrial use; second, the westerly intersection of Beaver Loop Road and the Kenai Spur Highway, which is ideal for certain kinds of commercial development complementary to the existing Central Business District; third, the industrial areas along the Kenai River.

There is no question that public ownership is extensive and that total utilization of these areas is, at best, a long way off. However, the City is in an ideal position to influence the direction of development in these areas, either by continued lease or by sale with conditions. Detailed development plans such as those being considered for Section 36 would also be appropriate for the three areas described above.

One potential way of disposing of some of the public lands and minimizing the effect of the Conservancy designation on privately owned property is through the concept of land transfer. For example, in the East Kenai neighborhood there are at present approximately 600 acres of highly developable property in public ownership. This land is outside of the three prime development areas identified above and in areas more appropriate for residential development. The land transfer approach would allow private developers who own less desirable wetland areas to transfer either their ownership or development rights to more desirable property owned by the City. This could be accomplished by either the transfer of title or by the lease of publicly owned property to private parties in exchange for covenants restricting development on wetland areas. The transfer of ownership would not necessarily be on an acre-by-acre basis and in most cases a transfer of less desirable wetland areas would be for more valuable, developable lands of smaller acreages.

A system of land transfer would accomplish several objectives. First, regulation of private property through the Conservancy zone would encourage and present the opportunity for private land owners to participate in the transfer to more developable land. Second, the City would be in a position to encourage building on developable lands in its ownership. Third, through the adoption of some very basic development standards, the City would be in an excellent position to direct the types of land uses and the densities desired in suitable areas. Fourth, the City would obtain wetland property, valuable to the economy of the community, in terms of its ecological significance, thus greatly enhancing the long-term viability of its aquifer recharge areas and maintaining the water quality of the Kenai River system. Fifth, at the

present time the hierarchy of review established by the Corps of Engineers can seem quite ominous to the private land owner and developer as witnessed by recent developments within the City. By initiating a strong conservation program in the wetland areas and establishing an alternative for developers, the City can be an important partner in mitigating problems that arise between federal bureaucracy and private development plans.

Basic actions would need to be undertaken to accomplish this goal:

1. Expand the Conservancy zone to cover all publicly owned lands identified with either the wetlands or having significant building constraints.
2. Create Conservancy Overzones over wetlands in private ownership which would augment the development and performance standards for permitted uses mandated by Section 404 of the Clean Water Act, Executive Orders 11990 and 11988, the Federal Coastal Zone Management Act and the Alaska Coastal Management Program.
3. The City should consider the creation of the post of City Lands Manager. The City Lands Manager would be responsible for reviewing and recommending transactions involving City property and developing policies for their potential deposition, development or acquisition.
4. The Army Corps of Engineers should be approached with a new definition of wetlands, at least as they occur within the City limits. This information and mapping should be based on the study conducted by the consultants with regard to environmental factors. The City's position concerning wetlands conservation and the concept of land transfer should be presented to the Corps. Based on this consultants findings and necessary references, an official set of wetland maps should also be developed.

5. The City should petition the State and Federal government for a redefinition of the Corps of Engineers' power in regard to lands that are not navigable, in other words, all wetlands within the City of Kenai. The management of non-navigable wetland areas should be the responsibility of the City.
6. The City should reorganize the present zoning code and redefine zoning boundaries in accordance with the adopted Land Use Plan.

Commercial Land Uses

The commercial element of the Kenai Land Use Plan has been developed in light of four primary areas of concern:

1. The Plan is based on population and economic projections developed by Mundy-McCrackin & Associates in January of 1979.
2. The Plan is based on a comprehensive survey of the existing commercial uses within the business district and outlying areas of the City of Kenai.
3. The Plan considers existing zoning.
4. A series of commercial goals has been outlined to form a basis for the Land Use Plan.

Projections for the future needs of commercial floor area within the City of Kenai were developed by Mundy-McCrackin & Associates (M/M/A) in January of 1979. The projections are for shopper and convenience-oriented uses that are easy to project based on existing and projected levels of population. Certain commercial and industrial land uses were not projected due to the difficulty in attaching square footage or land area requirements for them. The projections by Mundy-McCrackin & Associates indicate that there will be a need for approximately 70,000 additional square feet of commercial floor area for shopping within the central business district. Utilizing a rather generous parking ratio and considering the dispersed nature of most existing development, the consultants have projected a need for between 10 and 15 acres of commercially-zoned property for comparison and convenience stores within the central business district by 1990.

To better understand the significance of these projections and to translate them into a Land Use Plan, it was necessary to evaluate the existing level of commercial development related to the amount of land now zoned for commercial. At the present time there are two zoning categories for commercial uses: Central Commercial and General Commercial. The area zoned Central Commercial is located in the business district around the intersection of Main and the Kenai Spur Highway. There are approximately 25.3 acres now zoned for Central Commercial. General Commercial zoning within the City represents approximately 345 acres. This zone incorporates much of the existing business district and all of the commercial areas outside of the central business area. Within these two zoning districts, approximately 117 acres are now developed. From the comparison of how much land is now zoned for commercial purposes and how much land is projected as needed for future commercial purposes, one can see that there is an abundance of land available for future growth.

The goals for commercial development within the City of Kenai have been derived from the Citizens Attitude Survey and from conversations with City staff, Council and Commissions. They are outlined below:

1. Encourage more intensive commercial development within the existing business district.
2. Encourage neighborhood convenience-oriented uses in existing commercial areas outside of the central business district.
3. Discourage strip commercial development along highway, major arterial and collector arterial right-of-ways.
4. Limit expansion of commercial zoning outside the central business district.
5. Accommodate the need for auto-oriented commercial uses and general commercial uses which need highway orientation to prosper.
6. Consider the growth potentials of each of Kenai's neighborhoods in evaluating their needs for future commercial development.

The intent of the first goal is more completely described in the special section related to development in the business district. Basically, the purpose of this goal is to discourage the further dispersal of commercial development outside the central business district, thereby encouraging a more concentrated commercial neighborhood within the existing central business district. Many new commercial establishments have been locating either outside the City limits in the Borough or on commercial sites along the Kenai Spur Highway. Many of these uses would be more appropriately located in the central business district. The General Commercial designation of the Comprehensive Plan expands the commercial zoning within the business district in order to encourage a better choice of properties and commercial expansion within the existing business district. Generally, the commercial area of the existing business district is defined by the Main Street Loop Road.

Commercial development outside the business district has been accommodated through two zoning categories - Neighborhood Business and General Commercial. The Neighborhood Business category accommodates convenience-oriented and commercial land uses, such as neighborhood grocery and drug stores, service stations, laundromats, etc. These commercial land uses would be located within the neighborhood for ease of access. The consultants strongly recommend that commercial land uses outside the central business district be limited to areas that are now zoned for that purpose. Expansion of commercial areas outside the central business district would only encourage further development and discourage a more concentrated central business district. Although the proposed Land Use Plan recommends primarily neighborhood business-type uses outside the central business district, the consultants realize the need for some general commercial areas that would accommodate more auto-oriented commercial uses such as automotive and trailer sales lots.

Finally, the commercial element of the Land Use Plan considers the growth potentials within each neighborhood and has identified the need for some commercial zoning along the Kalifonsky Beach Road to serve the South Kenai neighborhood.

Industrial Land Uses

The industrial land use section was one of the most difficult to deal with in the Land Use Plan. The consultants note in the projections that there will be some growth within the community in the next 20 years. However, it is difficult to draw any conclusions from this information related to potential industrial growth. One of the most difficult problems involves identifying the needs for industrial land uses without an understanding of the specific needs of any new industrial activity. It was, however, possible to evaluate the existing amount of land zoned for industrial purposes and how much of that land is now developed for industrial purposes. At the present time there are 200 acres zoned for light industrial and 640 acres zoned for heavy industrial. In addition, there are 1,437 acres that are identified as Conservancy, but which are now used for airport purposes. From these figures it can be seen that approximately 50 percent of the industrial land now zoned for industrial purposes is undeveloped. Much of this is located on land that has been identified as good developable property. However, a small amount is in areas identified as high priority wetlands by the Corps of Engineers.

The analysis of existing industrial land uses and the land areas available for future industrial land uses leads the consultants to the conclusion that at this time there is an ample supply of industrial-zoned property. The largest of the existing industrial areas occurs off Beaver Loop Road on the Kenai River. This area consists of port and fishing industry activities as well as some oil industry buildings. Future development in this area will be greatly affected by governmental review of the permits required for development on wetlands by the Corps of Engineers. In this regard, the proposed Comprehensive Plan provides an important basis for concentrating industrial development on those lands that are now zoned industrial. As explained in the previous chapter, with the City undertaking a program of conservation on most of its wetlands areas, it may be easier for such agencies as the U.S. Fish and Wildlife Service to accept development plans in these areas.

One important element of the Land Use Plan is the creation of an Office-Manufacturing Park (OMP) designation. This zone overlays the existing airport, converting the airport from Conservancy to an OMP zone, and overlays the industrial area to the north of the business district. The purpose of the OMP designation would be to insure that industrial development occurs in an efficient and aesthetically pleasing manner, consistent with the desires of creating a more attractive business district and a more pleasing transition between industrial uses and other uses such as commercial or residential.

Fishing/Port Related Industry

The fishing and port industrial activities within the City of Kenai have been historically important to the stability of Kenai's fluctuating economy. As indicated in the introduction to the economic section, the fishing industry has and will continue to flourish and provide a steady base of employment for the future. In other sections of the Comprehensive Plan the ecological importance of the Kenai River drainage basin and its associated wetlands has been considered. The economic importance of the Kenai River and Cook Inlet to the City of Kenai is equally important. Although it is not within the scope of the planning study to develop a detailed analysis of water related and industrial facilities, it is important to consider present projected needs in view of potential land use requirements. The Port and Harbor Development and Feasibility Project now being undertaken by the Borough should provide some important background data and alternatives for the City to consider in the potential development of small or general cargo port facilities within the City. This study has taken into consideration the regional context of major port and fishing industries and will present a more complete analysis of the regional market and demand for both small boat and general cargo port and harbor facilities. Some basic findings follow which should assist in considering the potential land use priorities for facilities within the City of Kenai.

1. The City of Kenai now has sufficient industrial zoned land to accommodate projected future growth.

2. Water dependent industrial land uses should be given priority for industrial zoned land with water frontage on the Kenai River.
3. Associated industrial activities which support water oriented industrial land uses should be given second priority for locations along the Kenai River. Industrial zoned land now located west of the Beaver Loop Road should be limited to industrial uses that are dependent upon waterfront locations.
4. Industrial land uses within the Office Manufacturing Park (OMP) designation should recognize the need and accommodate cargo transfer and loading facilities related to the fishing and port industries.
5. The transportation system between the OMP/Airport area and the industrial land along the Kenai River should be given priority consideration and if necessary, reflected in the capital improvements program. The development of a rail connection is not recommended in the short range.

The City views development of a small boat harbor as an essential element in organizing the river front area for continued growth in the fishing, processing and industrially related industries.

Resource Extraction

The previous discussion of the Conservancy designation included comments with respect to accommodating the needs for resource extraction within the Comprehensive Plan. It is proposed that both gravel extraction and petroleum product extraction be accommodated as conditional uses within the Conservancy designation and the low-density residential designation in the Comprehensive Plan. These industrial activities are relatively short-term uses on any specific site and land reclamation is feasible. The conditional use permit process would be provided for within the

zoning code and application for such would be made to the Planning Commission and City Council. Both of these industrial activities are regulated by Federal and State standards and local consideration should expand its concerns to include how the specific project will relate to surrounding land use and consideration of post development land reclamation and potential future uses of disturbed land.

Private Recreation Use/The Kenai River

A review of the inventory of the park and recreational facilities along the Kenai River reveals the tremendous need for public access to the Kenai River. At the present time, there are few points of direct access to the Kenai River for sports fishing activities during the summer months. In order to accommodate the private recreational development of lands adjacent to the Kenai River, the consultants suggest that commercial recreational development be considered as a conditional use on land immediately adjacent to the Kenai River. The conditional use permit process would be handled under the zoning code with application made to the Planning Commission and City Council. As with resource extraction activities, the Planning Commission and City Council should be concerned with the specific site planning of a private recreational development as it relates to surrounding land uses and the Kenai River. Consideration should always be given to the maintenance of the ecology of the Kenai River.

Community Facilities

Introduction:

Community facilities are an integral part of the City's environment, as the quality of these facilities are yardsticks by which the quality of life in the community is measured. Community facilities include physical structures, as well as land or services, operated by the City or Borough for the benefit of the community residents. These facilities are of several types. First of all, there are facilities that provide for the daily maintenance and operation of the community, such as the City Hall and City Shop. Second, there are the facilities that provide for the basic welfare and safety of the community, including fire,

police, and emergency health care such as ambulance or hospital facilities. Finally, there are community facilities that provide for the basic cultural and recreational needs of the community. These include libraries, parks and other recreational facilities.

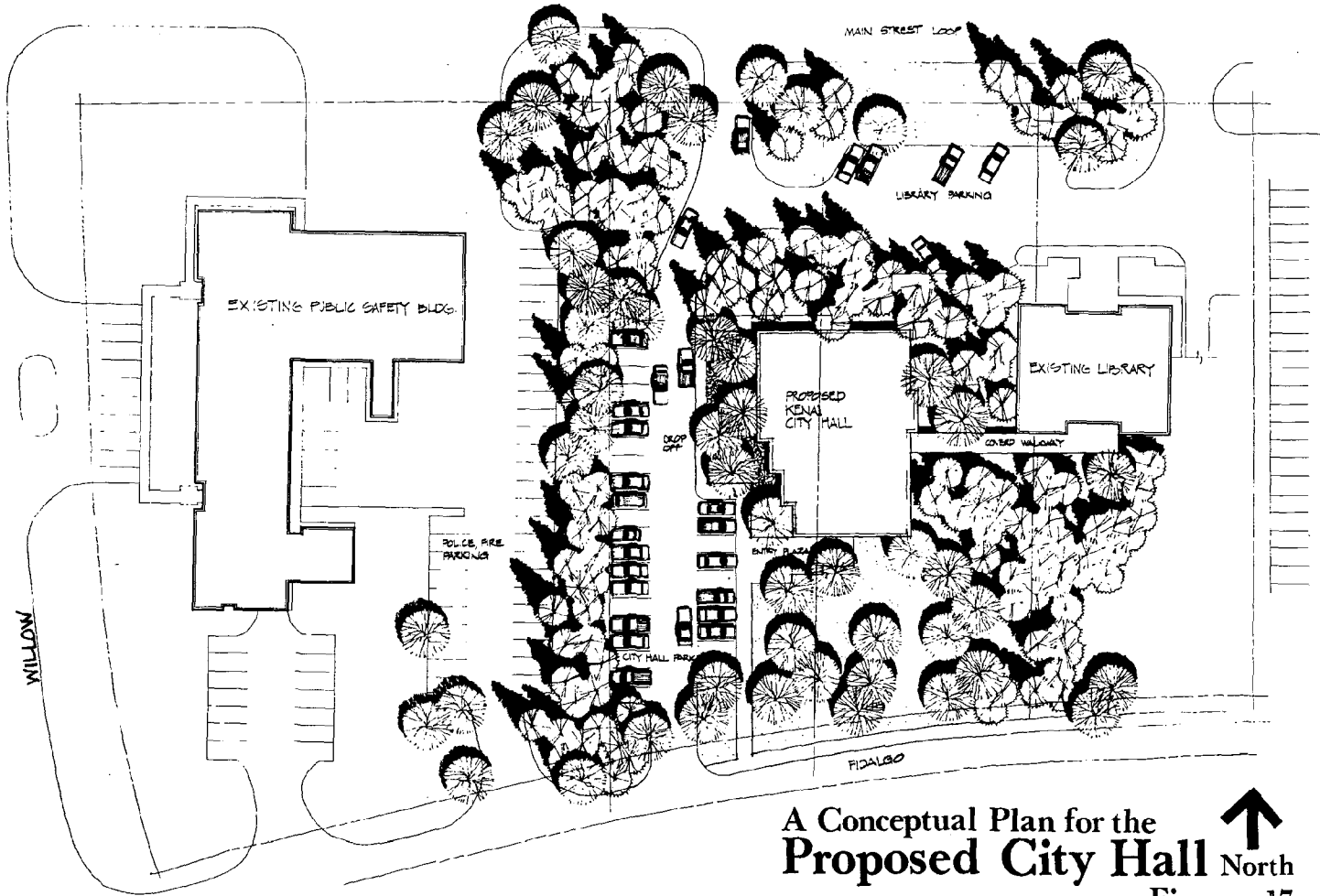
The demand for new or expanded facilities increases as the population increases in the community and as living standards and public expectations rise with community growth. A study of the community facilities for the City of Kenai has involved two basic tasks. First of all, all community facilities, as outlined above, have been inventoried and notes made about their characteristics and capacities. Secondly, as part of the Attitude Survey, several questions have been asked relating to the existing supply of community facilities in the City of Kenai. The results of the Attitude Survey, as they relate to community facilities, have been summarized in the Technical Appendix. The discussion of community facilities in this chapter will focus on an analysis of the adequacy of the existing facilities. Schools will be considered generally as they relate to providing community services such as library or recreational facilities. See Proposed Community Facilities Plan, Figure 16.

The City Hall:

The present City Hall location at the airport terminal building is inadequate for present and future needs. City employees, furniture, records, etc. are crammed into a space several times smaller than that necessary to accommodate a staff of this size. The current working environment can have a very negative effect on the quality of service delivered by the City employees.

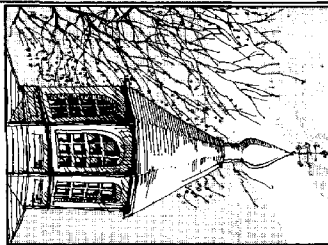
Therefore, one of the most significant proposals, in terms of community facilities, is a new City Administrative Building. Such a facility should include ample office space for all City Departments, including Finance, Engineering, Parks and Recreation, Building and other administrative offices. Additional space should be considered to accommodate a Planning Section for occasional use by Borough planners. The new City

Hall facilities should also include meeting rooms for the City Council, Boards and Commissions and perhaps a multi-purpose room in order to encourage community activities to take place at the City Hall. See Figure 17 for conceptual site plan.



**A Conceptual Plan for the
Proposed City Hall**  North
Figure 17

The consultants, in reviewing possible sites for the new City Hall, have selected the City-owned lands now existing between the library and the fire and police buildings. Other sites under consideration included the old City Hall site, which has been proposed in the Business District Plan as a community park and a smaller site across the Loop Road from the fire and police building. The consultants are recommending the site



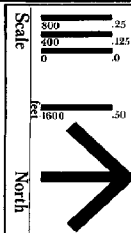
The Comprehensive Plan: City of Kenai

Community Facilities Plan

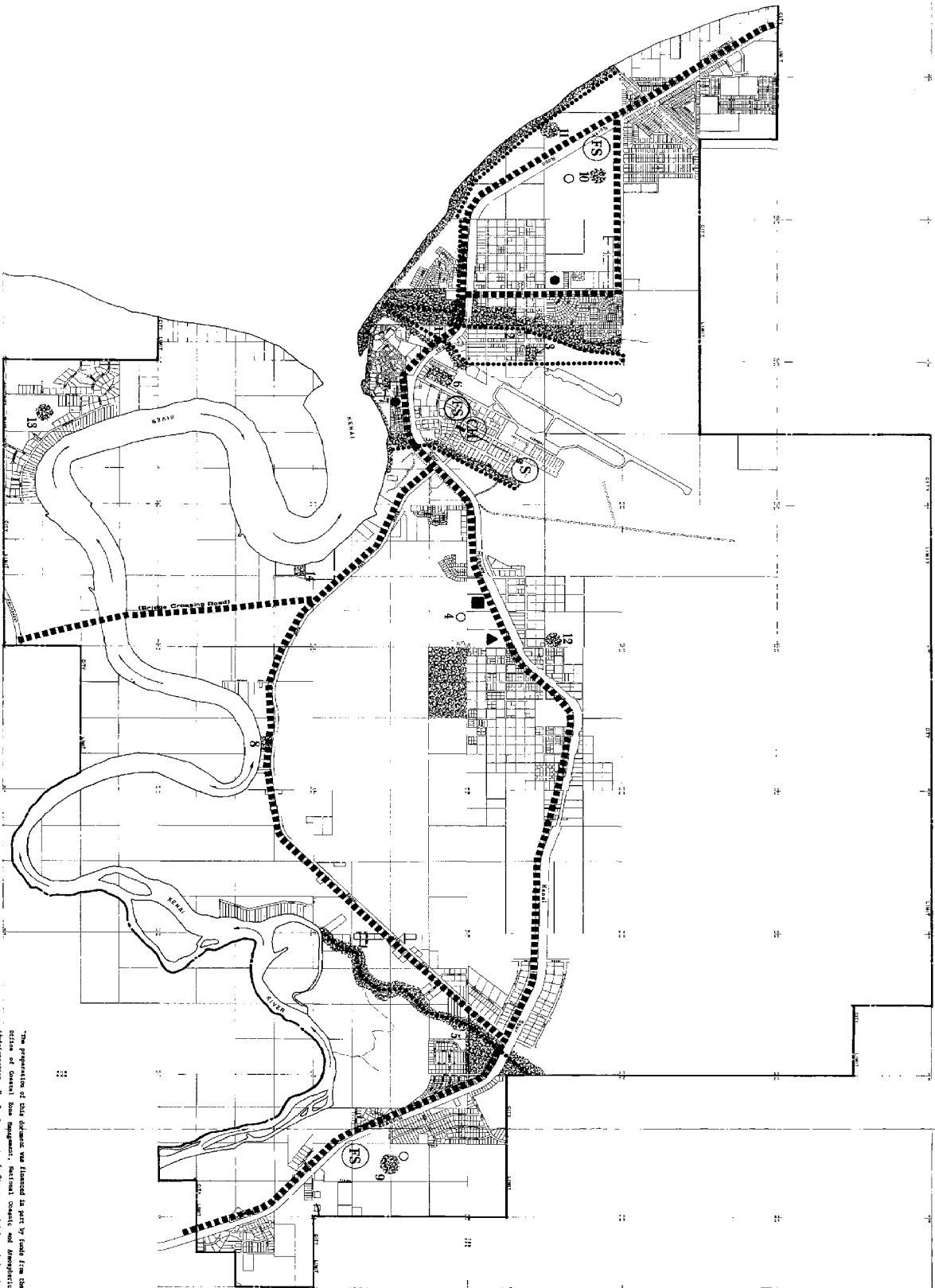
Legend:

- Parks-Development
- Priorities
- Recreation Trails
- Bicycle Trails
- ▲ Junior High
- High School
- Elementary
- Proposed Elementary
- City Shop
- City Hall
- Existing Fire Station
- Proposed Fire

Source:
R.W. Thorpe & Associates



Prepared by:
R.W. Thorpe & Associates
Seattle/Anchorage



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Figure 16

between the fire and police building and library for the following reasons:

1. This site is in City-ownership and is large enough to accommodate a very flexible building program that could be built on a phased basis if the City so wishes.
2. The site's proximity to other government facilities, including the library, police and fire stations, and State Services Building begins to create a core area of government buildings. Common use areas such as a multi-purpose meeting room could serve many departments, such as the library, at a significant long-term cost savings to tax payers.
3. The site's close proximity to the airport was considered an important attribute.
4. The site is very close to hotel and restaurant facilities which could be important to arriving visitors doing business at the City Hall.
5. With the new City Hall location between the fire and police stations and library, an opportunity is available to begin to develop a common architectural design between the three buildings. Outdoor connections and spaces including covered walkways and pedestrian seating areas could be easily planned between these structures which would enhance the visual character of this area.
6. Parking facilities could easily be built adjacent to one another.
7. The new City Hall's proposed location is in an area that is considered of prime importance to the future develop-

ment of the Business District. This area, bordered on the west by Willow Road, on the north and east by the Loop Road and on the south by the Kenai Spur Highway, is being proposed for office and commercial uses. With the future development of existing platted streets, this area can become an important new commercial and office center in the City. As such, the proposed new City Hall would be one way of beginning this development and hopefully encouraging future development on the remaining parcels.

The City Shop:

The present City Shop site appears to be adequate to serve the present and future needs of the City of Kenai. Adequate land is available to the north of the site for any future expansion. One criticism can be levied at the City in regard to the City Shop site: The present operation is visually unattractive and just as the City should be concerned about the development and appearance of new private construction within the Business District, so should it be concerned about its own development. Steps should be taken in the future to evaluate the condition and adequacy of the present buildings. If future expansion is considered necessary, the City should consider the services of a professional architect and landscape architect to develop a scheme that would improve the visual appearance of the City Shop buildings, and make it and adjacent grounds a much more attractive area to arriving visitors at the airport.

Fire and Police:

The new fire and police facility is adequate to serve the present and projected short-term needs of the community. As the community expands and more intensive development begins to occur in the West Kenai and East Kenai neighborhoods, it may be necessary to improve the response time by locating either a volunteer fire department or a full-time fire company in each of these neighborhoods. However such need is not expected to occur in the short- or medium-term. A possible fire station site has been considered within Section 36 in West Kenai.

The existing meeting room at the fire and police building is being used for community meeting purposes which is a good interim multiple use of the facility, although it was originally intended as a meeting room for police and fire activities and as a TV room. The consultants believe that this meeting room should be utilized first and foremost for its intended purpose. However, it should also remain available to the public for special meetings if the meeting rooms at the proposed new City Hall are full. Until the new City Hall can be built, this meeting room should continue its present use.

Library:

The Kenai Community Library is owned and operated by the City of Kenai and is a part of the Alaska State Library System. The library is located near the corner of Willow and Beaver Loop Road, just south of the fire/police station. Its location, within three blocks of the Kenai Spur Highway and close to the center of activity in the Kenai Business District, is considered excellent. Books and other library materials are provided by the library system's budget in the City's general fund. The library building was constructed in 1976 using money from state and local sources. Design of the structure evolved after many public meetings which considered the level of use, the number of employees to be working at the library and the availability of the library for other functions. In addition to a seating capacity for 45 patrons, the building has a floor area of approximately 5,000 square feet which exceeds the minimum square feet recommended for community libraries in the State of Alaska.

Since the facility is relatively new, it is in very good condition in most respects. However, the library at the present time does not have a community meeting room, and this fact has been considered the primary inadequacy of the present library facility. Also additional room is needed for book stocking. Parking is provided on site and is sufficient in size to accommodate expansion of the library in the future. Parking for the handicapped is available and the building incorporates a barrier free design.

In summary, the present library facility is adequate in terms of floor space, seating and parking. However, additional space is needed for book stocking and multi-media equipment. Future expansion of this facility to include a community meeting room would be possible on site. Refer to the recommendations for City Hall for a multi-purpose meeting room.

Schools:

The school system administered by the Borough has an excellent planning program. Present needs of the School District are adequately served by the two elementary schools, one junior high school and one high school currently in operation. It may, however, be necessary to build new school facilities to handle the expected community population growth. Two new elementary school sites should be planned in order to handle the increased population in the West Kenai and East Kenai neighborhoods. The consultants are considering a potential elementary school site within Section 36 and another in the East Kenai neighborhood near the present junior high and high schools.

The South Kenai and Beaver Creek neighborhoods, because of their fairly low density, can be expected in the future to rely on busing to the nearest elementary school.

As indicated in the inventory on community facilities, the schools provide an important service to the community as recreation centers. Indoor and outdoor recreation facilities are available at all schools and these activities should continue to be important to the community. The present swimming pool, for example, at the high school should continue to be made available to the general public as well as to school children on a regular basis. Arrangements should be made to schedule hours for general public use so that conflicts do not occur with school activities.

Parks and Recreation:

The Parks and Recreation Plan is intended to provide the community with a program for development of a park and open space system adequate to serve the present and projected population consistent with the commun-

ity's needs and guided by recognized park and recreation standards, which have been established and based upon experience in communities of all sizes. Important to the development of a comprehensive parks and recreation plan is a good understanding of what existing facilities are available. Included in the technical appendix of the Comprehensive Plan is an inventory of existing park and recreation facilities. As the Kenai community grows and neighborhoods throughout the City become more clearly defined, the need for park and recreation facilities will become more pronounced. A well-balanced and correctly designed park and recreation open space system will provide facilities for every age group and every major recreation interest, which is properly a part of the community's responsibility to its citizens. In the development of the study, consideration of the following factors was essential to the coordination of an overall Comprehensive Plan:

1. Existing land use
2. Population projections and characteristics
3. Projected land use
4. Natural conditions within the city, including topography, soils, slopes and vegetation
5. Availability of utility systems
6. Availability of existing park and recreation systems
7. Schools and school facilities
8. Access and circulation
9. Quasi-public recreation facilities, such as private clubs

Various standards set by State and National agencies have been used to provide a basis of comparison against which the existing system can be measured. This Parks and Recreation Plan has been based on a Citizen's Attitude Survey, conversations with Park Board members and City staff and a review of park standards to arrive at the conclusions, although in many instances, it may be inappropriate to apply a set of standards to a park system. The standards considered most applicable for this study include, principally, those of the National Recreation and Park Association (NRPA), which are the most widely accepted national standards. The utilization of park and recreation standards should be considered as a

means of comparison, realizing that the unique characteristics of a community, such as Kenai, demand special consideration. For example, the importance of winter sports and the availability of such facilities as ice skating rinks is an unique addition that should be considered.

Acreage Demands:

For the purposes of analyzing the existing Kenai park system, it is convenient to discuss neighborhood parks, community parks and special recreation facilities separately. Neighborhood parks are located relatively close to the people who use them and are designed to accommodate short duration daytime recreation activities. As defined by NRPA, they vary in size from less than an acre to 20 acres and should not be further than two miles from those who use them. This two mile service radius may be shortened if access is restricted by such barriers as major highways or if population characteristics indicate that a need for more parks is necessary. Neighborhood parks should provide play equipment, game courts, picnic tables and paths, as well as landscape treatment. The attitude survey for the City of Kenai indicated a strong desire for more neighborhood parks.

Community parks are capable of serving large numbers of people from all segments of the community and are developed for this purpose. The facilities in community parks should provide opportunities for a wide range of day-use activities and may include picnic areas, sports facilities and play equipment, large natural areas with hiking or riding trails, day camp facilities and, in certain instances, special features such as zoos or gardens. Although the majority of users of a community park generally come from within the city, special features may extend its service area to a greater distance. In the case of Kenai, community parks can be expected to accommodate a significant amount of outdoor recreational use from tourists and visitors from areas such as Anchorage and out of state.

Special parks are defined as special purpose facilities which do not fit into the two catagories above. See Table 10 for a summary of existing park facilities.

Table 10

EXISTING PARK AREAS

Name	Acreage	Developed Acreage	Type	Facilities
1. Spruce Park	2.5	2.5	Neighborhood	Picnic, parking, play area
2. 4th Street Park	3.75	0	Neighborhood	None
3. Beaver Creek	10.37	0	Neighborhood	Children's play area
4. Kenai Municipal	45.66	5.66	Community	2 little league baseball fields 1 baseball, rest- room, parking
5. East Kenai Park	80.00	0	Community	None
6. Town Square	1.8	0	Special	Childrens play equipment, old City Hall
7. Cunningham Park	2.38	2.0	Special	Picnicking, parking 1 restroom

Demand Standards for Park Planning:

An extensive and statistically significant survey of public use of outdoor recreation facilities done by NRPA found the participation rate on an average peak day to be .4583 for neighborhood parks and 0.0853 for community parks. "Participation rate" is defined as the percent of the total population who could be expected to use park facilities on an average day when park facilities are receiving maximum use. The NRPA also determined the area needed in neighborhood parks to be 2.8 acres for every 100 users. The area standard for community parks is 3.5 acres per 100 users. The demand for both neighborhood parks and community parks is illustrated in the following Table 11. Population projections are based on the Analysis of Economics and Population by Mundy-McCrackin & Associates, 1979.

Table 11

PROJECTED PARK NEEDS*

Neighborhood Parks	1978	1985	1990
Population	4,374	7,650	10,670
x (participation rate, average peak day)	(.4583)	(.4583)	(.4583)
x 2.8 ac/100 users	2,004	3,500	4,890
Acreage neighborhood parks in demand	56.00	98.00	136.00
Existing developed acreage	11.16		
Neighborhood Park Needs (NRPA)	44.84	86.84	124.84
<u>Community Parks</u>			
Population			
x (participation rate, average peak day)	4,374 (.0853)	7,650 (.0853)	10,670 (.0853)
x Large city park users average peak day	373	652	910
x (3.5 ac./100 users) demand in acres	13.05	22.82	31.85
Existing developed acreage	5.66		
Community Park Needs (NRPA)	7.39	17.16	26.19

* Based on oil development scenario projections by Mundy-McCrackin & Associates.

Park Needs by Neighborhood:

In determining park needs for the various neighborhoods in the City of Kenai, three sources of information were utilized: 1. Existing lands now in City ownership or managed by the Parks and Recreation Department. 2. Developed park acreage managed by the Parks and Recreation Department. 3. Projected population by neighborhood. Utilizing NRPA standards, the needs for specific park and recreation facilities was determined. What follows is a by-neighborhood evaluation of the specific park and recreation facilities needed through the year 1990. See Figure 16 and Table 12 for a summary.

Table 12

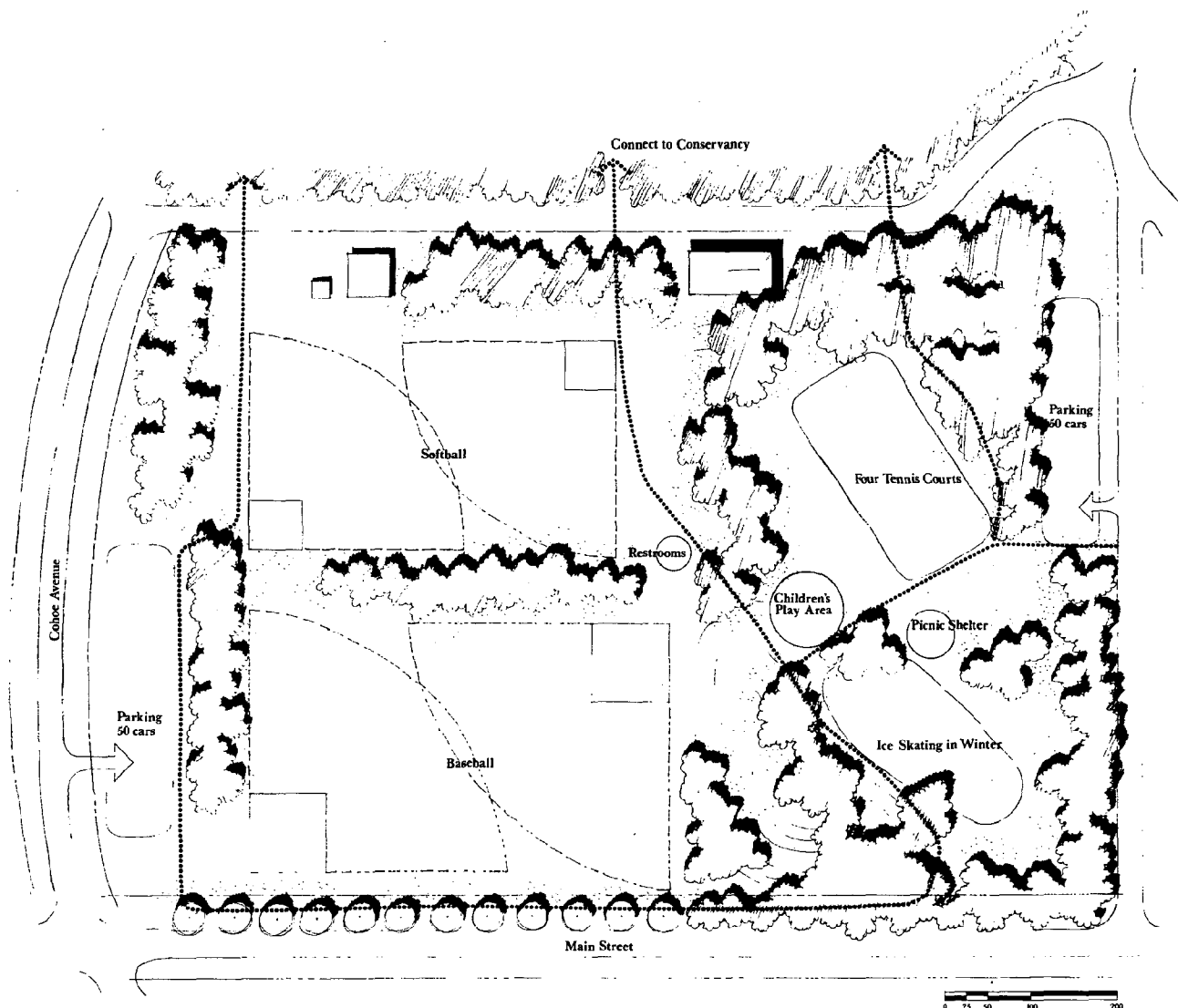
SUMMARY OF EXISTING PARK ACREAGE AND NEEDS

	Available	Developed	1978	1985	1990
Neighborhood	16.62	2.50	44.84	86.84	124.84
Community	125.66	5.66	7.39	17.16	26.19
Special	4.18	2.00	-	-	-
Total	146.46	10.16	52.23	104.00	151.03

West Kenai: The neighborhood has approximately 52 acres of land now available for park and recreation development. Of this acreage, approximately 8 acres are developed. The developed parklands include Spruce Park, with picnic facilities, parking and a children's play area; and Kenai Municipal Park, with two softball fields, one baseball field, an ice-skating rink and restrooms. The West Kenai neighborhood has an extensive network of open space, which follows major drainage courses east of the Woodland Park Subdivision, in addition to an extensive beach along the Cook Inlet.

Given the current population of West Kenai, there is now a need for 20 acres of developed recreational lands. By 1985, there will be a need for approximately 35 acres, and by 1990 approximately 56 acres will be required. Specific facilities required include 3 children's play areas, four tennis courts, two softball and one baseball field. The tennis and additional softball/baseball fields are proposed at the Kenai Municipal Park adjacent to the Business District. See Figure 18.

East Kenai: At the present time, there are no city-owned park and recreation facilities in the East Kenai neighborhood. Park and recreation opportunities are provided only through the high school. The East Kenai neighborhood is second only in importance to the West Kenai neighborhood in terms of future growth for the city. There are



North ↑ A Conceptual Plan for
West Kenai Park
Figure 18

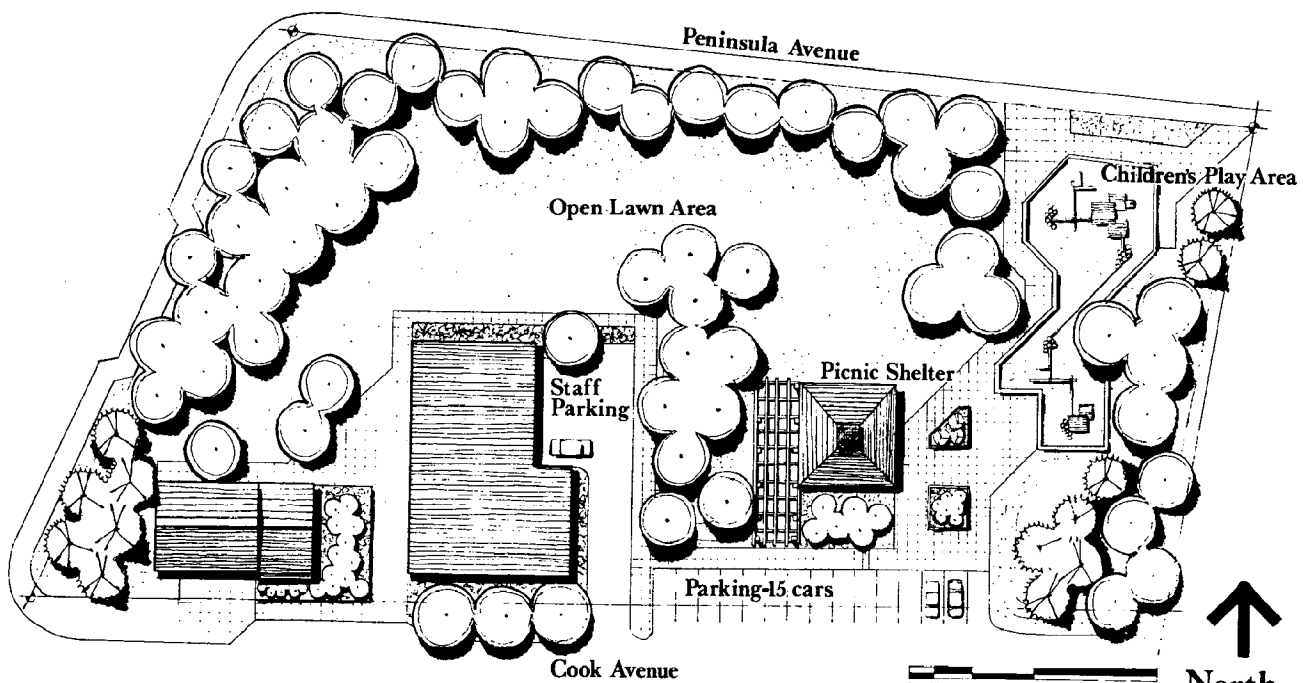
approximately 80 acres of park lands available for development. These lands are adjacent to the Oiler Field. Given the current population level, there is now a need for 15 developed acres of park and recreation lands. By 1985, there will be a need for 25 acres, and by 1990, approximately 37 acres of developed park lands will be needed. Specifically, the following facilities are required: Two baseball fields, two softball fields, 20 picnic stations, two children's play areas, two tennis courts, two restrooms, a cross-country ski course and an ice skating rink. No land acquisition will be necessary in the East

Kenai neighborhood, south of Kenai-Spur Highway. The City should consider the designation of three acres for park and recreation use in the residential area north of the Kenai-Spur Highway.

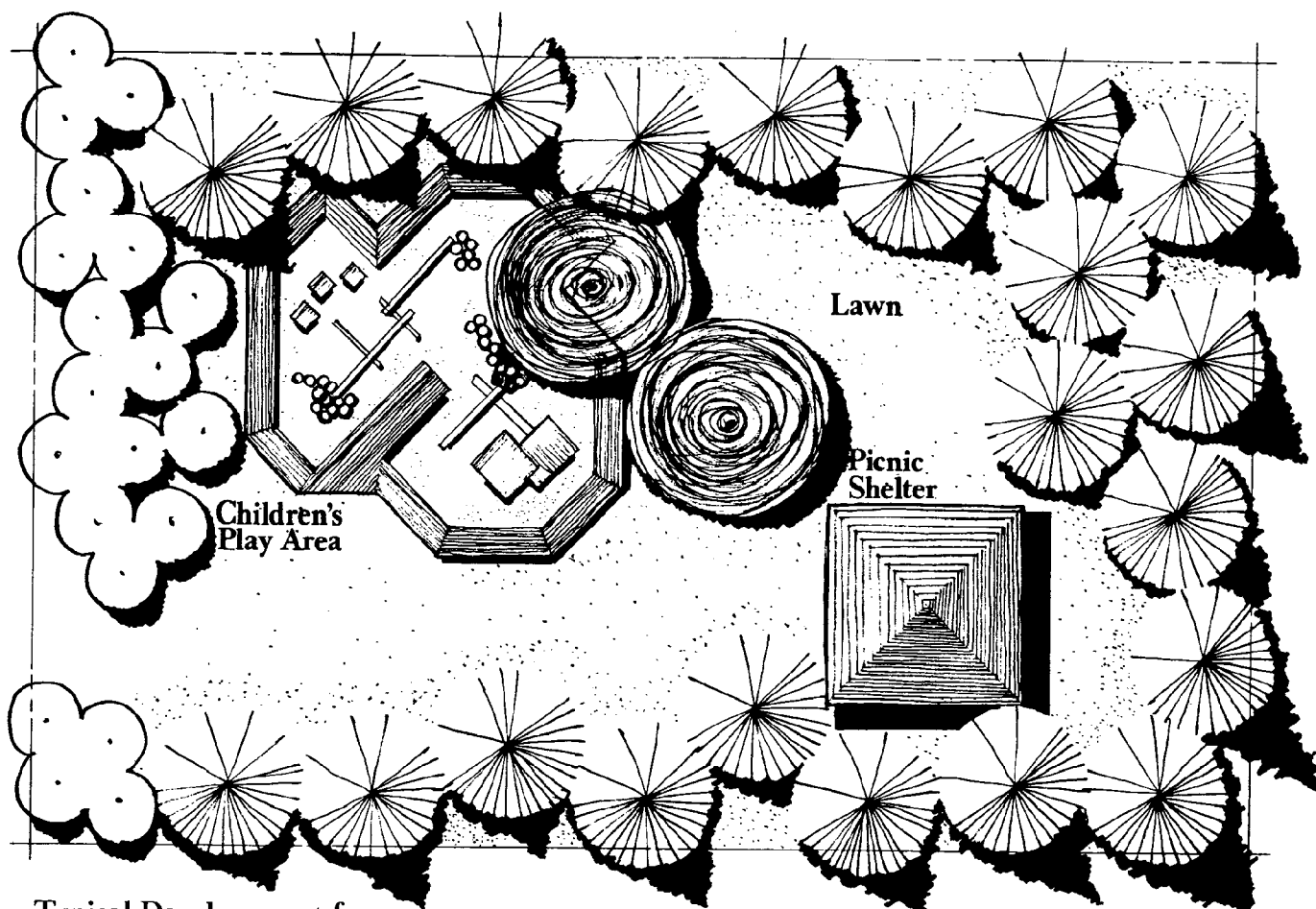
The area called the "Dustbowl" is now utilized for baseball practice. As mentioned in the inventory, this parcel has some significant access and parking problems, and the surface is not ideal for organized baseball purposes. If the City should continue utilization of this area for recreational purposes, it should consider expanding the site, planning for parking with access from a secondary road and develop the site with drainage and turf suitable for recreational play.

Central Kenai: There are no park and recreational facilities available in the Central Kenai area around the business district. Based on existing and projected population, there is now a need for at least two acres of park lands. By 1990 there will be a need for approximately four acres of park lands. The proposed Townsquare Park, at the site of the old City Hall will provide the bulk of park opportunities through the year 1990. The illustrated plan for the 1.8 acre site indicates a play area, a major picnic shelter, restroom, court-game area and a large open area for informal field games. Opportunities for ice skating should also be considered. The illustrated plan labelled Figure 19 attempts to improve the image of the property from surrounding streets, and incorporates the existing buildings, which are in sound condition and should be utilized by the community. It may be possible to satisfy the need for restroom facilities through the existing buildings at a significant cost savings.

Beaver Creek: There are now approximately 10.37 acres available for development in the Beaver Creek neighborhood. (There are minimal park and recreation facilities in this neighborhood.) At the present time, based on existing population, there is a need for 15 acres of recreation facilities. By 1985 there will be a need for 24 acres of park and recreation facilities, and by 1990, a need for approximately 36 acres. The Beaver Creek neighborhood is one of only two neighborhoods that



North
A Conceptual Plan for
Town Square Park
Figure 19



Typical Development for a
Neighborhood Park

Figure 20

require additional park land acquisition. By 1990 the Beaver Creek neighborhood will need one children's play area, two tennis courts, one baseball field, one softball field and approximately ten picnic stations.

South Kenai: At the present time, there are no park and recreation facilities available within the Kalifonsky neighborhood. There will be a need for approximately 4 acres by 1990. There is a current need for approximately 2 acres of developed park land. The Kalifonsky neighborhood is the only other neighborhood that will require park land acquisition. Ultimate park and recreation facilities in this area should incorporate one children's play area, picnicking opportunities and one informal play area for informal field games. See Figure 20 for a conceptual drawing of a neighborhood park.

Special Facilities: Cunningham Park located on Beaver Loop Road in the Beaver Creek Neighborhood, exists as one of few park and recreation facilities that provides access to the Kenai River. As such, it is a very important facility to the City of Kenai. At the present time there are approximately 2.4 acres available for development. Current facilities now include picnicking, restroom and a small parking area. These facilities should be expanded in the future to encourage more camping and picnicking opportunities especially during the summer months and fishing season. In addition to Cunningham Park, a small park is proposed for within the industrial area south of the Port of Kenai. This facility should include picnic-shelters, parking, along with the existing small boat launch, primarily for use during the fishing season.

Open Space and Trails: The proposed comprehensive plan, Figure 13, illustrates a dispersed open-space system that should be considered a significant recreation opportunity. The wetland areas are extensive, covering approximately 8,000 acres within the city limits. The open space system has been designated on lands identified with severe building constraints. Drainage courses, wetlands, and shore cliff areas all come under the designation of conservancy. Existing drainage

courses and open spaces have been utilized in defining neighborhood boundaries. As an example, the extensive drainage way that exist between Kenai and the Airport provides a significant visual barrier between the developing neighborhood and the intensive commercial/industrial uses of the business district. Maintaining these open space corridors will prove significant in retaining the semi-wilderness character of the area. In addition to the areas indicated on the comprehensive plan for formal open space designation, wetland area's now in public ownership should be considered an extension of this system. Further, the open space system, incorporates an extensive stretch of saltwater park opportunities along the Cook Inlet. At the present time, there are no park facilities provided along the Cook Inlet within the city limits. The open space system indicated provides a major access to this recreation amenity.

The trail system proposed in the Community Facilities Plan was developed based on the existing trail system and the availability of trail corridors within the various neighborhoods. The proposed trail system should be considered in three respects. (1) The trail system serves to link existing developed neighborhood areas to the school system. The intent is to develop and expand the existing trail system in order provide an efficient means for children to walk to and from school; (2) The trail system will connect various park and recreation areas within and between neighborhoods. The West Kenai trail system connects various residential areas to existing park facilities. It exists along proposed open space corridors. These trail facilities should be designed as informal foot paths of crushed rock or bark chips; (3) Opportunities for the bicycle have been considered. Major bicycle trails are proposed along Beaver Loop Road, Kenai Spur Highway and the Kalifonsky Highway. These facilities should be constructed adjacent to existing roadway shoulders in order to provide a good asphalt surface on which to ride and minimize the cost of a fairly expensive trail system for a limited number of users. In the future, when recreation demands for bicycle trails increase, a separated system from existing highways should be considered.

Programming for Park and Recreation Development:

As with the proposed street improvements, not all of the parks identified above will be necessary in the immediate future. However, certain basic developments will be needed immediately. In order to identify all of the potential park and recreation projects to be undertaken by the City, a list of potential projects has been prepared, suggested priorities indicated and approximate costs estimated. Acquisitions have also been highlighted.

The recommended park and recreation capital projects are presented in Table 13. The table identifies neighborhoods, the type of improvements, project priority, and an estimate of project construction costs. The project priorities and cost figures should be considered only as a starting point for discussion by City Boards in adopting a capital improvement program. The C.I.P. will identify both project priority and specific funding sources. Fourteen projects are identified for development over the next ten years.

The most urgently needed park and recreation improvements are in the areas of children's play areas and athletic fields for adult recreational baseball. The bulk of the initial capital outlays for park improvements shall occur in West Kenai, Central Kenai and the East Kenai neighborhoods. As indicated in the previous section, the City presently has an abundance of park and recreational lands available for development and some facilities such as the Kenai Municipal Park are in severe need of updating and improvement. The two neighborhood parks in the West Kenai neighborhood, Birch Park and the Park on "D" Street, are virtually unimproved. Improvements to these two parks should be considered a high priority. The large City park in the East Kenai neighborhood will serve an important function in providing the community with additional athletic fields for adult baseball. The implementation of the Townsquare Park at the site of the old City Hall is an important proposal in encouraging further development of the Business District south of the Kenai Spur Highway.

Table 13

PROPOSED PARK IMPROVEMENT PROGRAM

No.	Project	Location	Priority	Improvement	Cost
1.	Kenai Municipal Park	W.K.	A	1B, 3YB, RR P, O.C.	\$600,000
2.	4th Street Neighborhood Park	W.K.	A	CP, P, OP, RR 1S, SK	200,000
3.	Municipal	E.K.	A	2S, 2B, RR CP, 2T, OP P, H	1,500,000
4.	Beaver Creek	BC	A	CP, T, OP, RR SK	150,000
5.	Spruce(Birch)St. Neighborhood Pk.	W.K.	A	CP, P	50,000
6.	West Kenai Municipal	W.K.	B	3S, 4T, RR, P, CP	1,000,000
7.	Town Square	CK	B	OP, CP, RR, P SK	600,000
8.	Cunningham Park	BC	B	P, BO Ramp, OC	75,000
9.	Community Park*	BC	C	CP, IT, S, OP, 1B, 1S, RR	800,000
10.	Neighborhood Park 1	W.K.	C	RR, CP, 1T, P, 1S SK	300,000
11.	Neighborhood Park 2	W.K.	C	CP, P, OP	150,000
12.	Neighborhood* Park	E.K.	C	CP, OP, P	150,000
13.	Neighborhood* Park	S.K.	C	CP, OP, P	150,000
14.	Industrial Waterfront Park	E.K.	C	Pier, Boat ramp, P	300,000

Note: See key for Table 13 on following page.

Note: The Park Improvement Program will be accomplished by the C.I.P. to a large extent and the C.I.P. may vary somewhat from the recommendations herein. As such, in the case of conflicts, the C.I.P. will take precedence.

Key

* Acquisition	OC Overnight Camping	Priorities - Totals	
OP Open play field	YB Youth Ball Field	(1979 Dollars)	
P Picnicking	SK Skating Area	A	\$2,500,000
CP Childrens play	E.K. East Kenai	B	\$1,675,000
S Softball	W.K. West Kenai	C	\$1,880,000
T Tennis	C.K. Central Kenai		
B Baseball	S.K. South Kenai		
H Hockey	B.C. Beaver Creek		
RR Restroom			

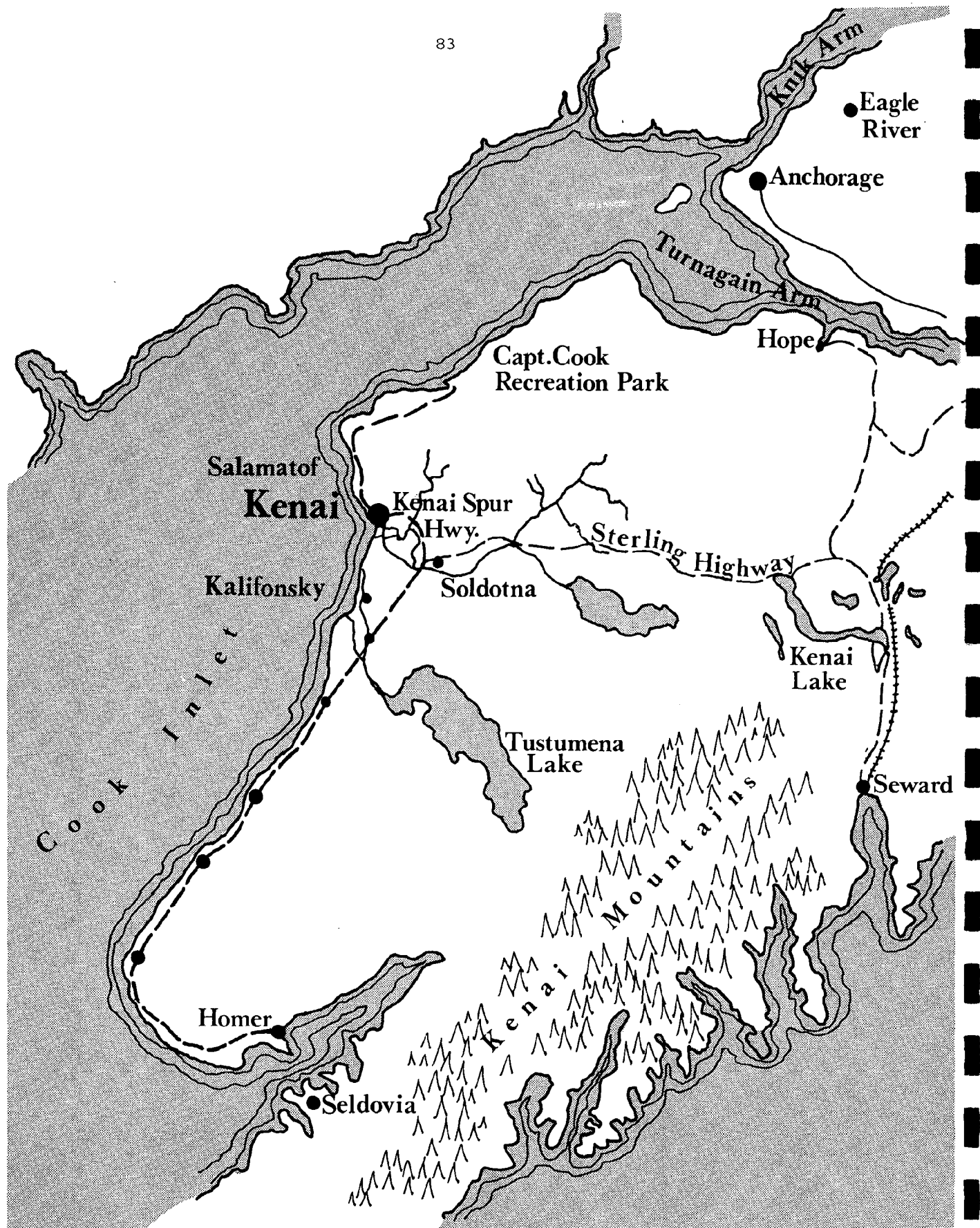
All of the park and recreation facilities identified in the City's priority list could be eligible for assistance through either State or Federal sources. Although it is out of the scope of this project to explore these potential funding sources, it is recommended that a detailed study be undertaken by the Park and Recreation Department to identify potential funding sources and application requirements for park and recreation improvements within the City of Kenai.

Circulation ElementExisting Conditions:

As in many of the rugged and sparsely populated sections of Alaska, regional transportation facilities on the Kenai Peninsula are limited in number. As shown in Figure 21, the only overland routes to the rest of the State are the Seward-Anchorage Highway and the Alaska Railroad. The City of Kenai is tied into the regional highway system via the Sterling Highway and the Kenai Spur Highway. Normal driving times to Anchorage, exclusive of bad weather or construction delays, are about four to five hours, but it is only a short 25-30 minute aircraft ride. Thus, much of long distance passenger and cargo travel to and from the City of Kenai is by air--either licensed carriers or private plane.

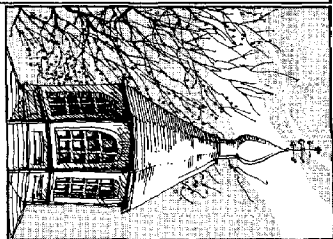
Existing Street System:

The existing and proposed street and highway system in the Kenai area is illustrated in Figure 22. Roadway characteristics and traffic conditions vary widely--ranging from sparsely traveled gravel roads in out-lying residential areas to a major five-lane state highway through the



Peninsula Road System





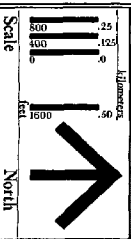
The Comprehensive Plan: City of Kenai

Circulation Plan

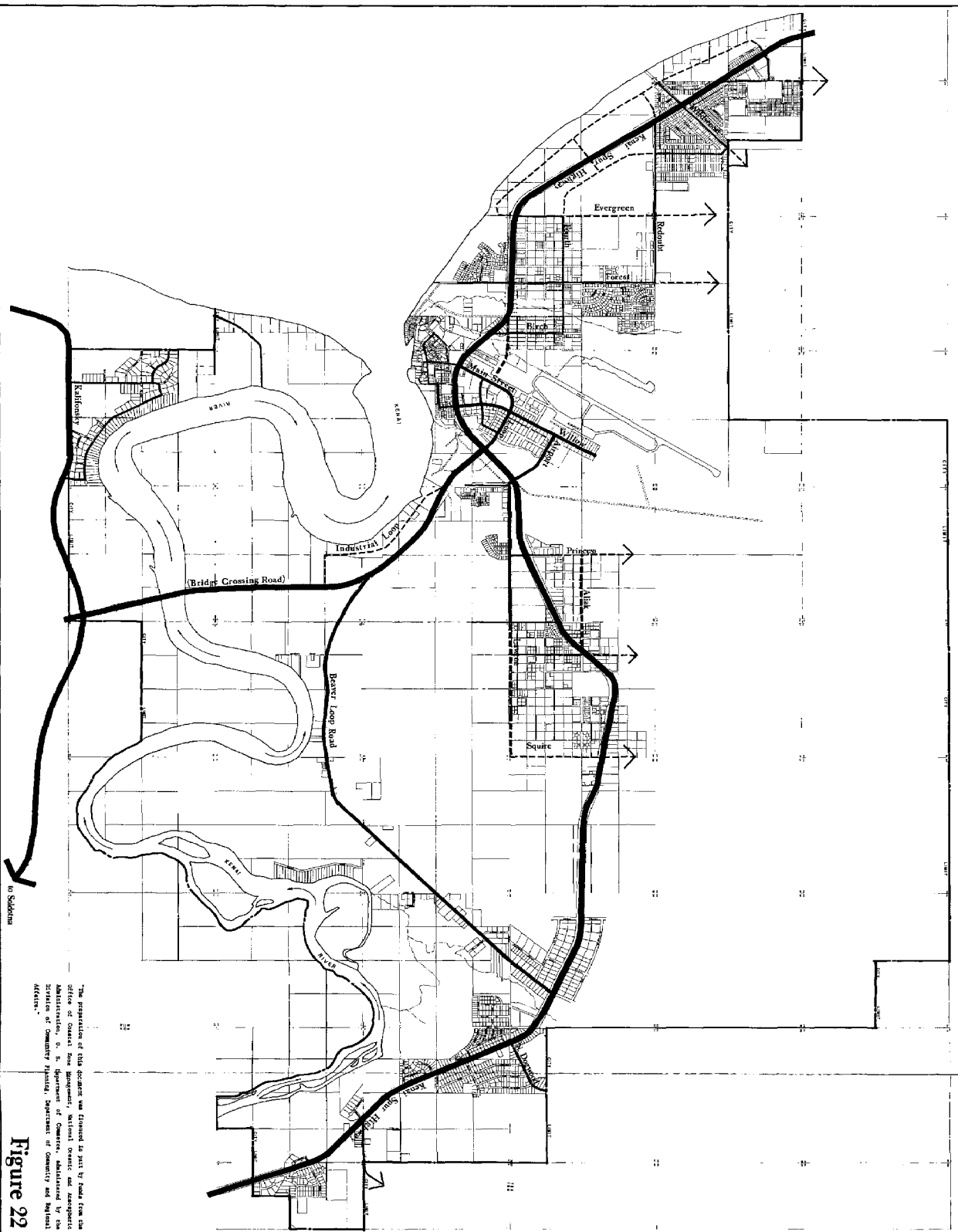
Legend:

- Existing Proposed
- Major Arterial — none
- Minor Arterial —
- Collector —
- Local Streets —

Source:
The TRANSPRO Group



Prepared by:
K.W. Thorne & Associates
Seattle/Anchorage



"The preparation of this document was financed in part by funds from the office of Coastal Zone Management, National Oceanic and Atmospheric Administration, U. S. Department of Commerce, administered by the Division of Community Planning, Department of Community and Regional Affairs."

Figure 22

downtown carrying in excess of 10,000 vehicles per day (vpd). Major through routes, as indicated in Figure 21, are paved highways maintained by the Alaska Department of Transportation (DOT). Many of the City-maintained streets, on the other hand, are gravel roads, although the newer residential subdivisions have installed paved local streets in accordance with the City's subdivision ordinance.

A comparison between existing road system and the existing land use map indicates that the current street system provides a good basic transportation infrastructure for area residents and businesses, and it generally serves the present traffic needs of the City. The City has developed mainly along either side of the Spur Highway which runs the length of the community. As the principal link to the rest of the peninsula, this state highway serves both through traffic between Soldotna to the east and the employment centers in North Kenai, and the locally-oriented travel to, from and within the City itself.

The Kenai Spur Highway is generally a two-lane highway, with wide rights-of-way (up to 300 feet), improved shoulders, and high-type design standards. Within the downtown it widens to a five-lane street with curb and gutter. Major intersections along the Spur Highway include Forest Drive, Willow Street, Main Street/Beaver Loop Road and the recently completed Airport Way. Speed limits are 35 miles per hour in the downtown and 55 miles per hour outside developed areas.

The other principal through route serving the city consists of Beaver Loop Road, the Bridge Crossing Road and Kalifonsky Road which provides a southerly access to the City of Soldotna and other peninsula communities to the south. It is a two-lane rural highway, with minimum 100-foot rights-of-way and high-type design standards. Speed limits outside developed areas are 55 miles per hour.

Street Classification:

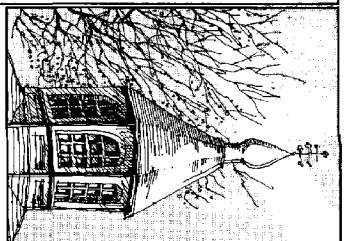
Existing streets in the City of Kenai were reviewed and classified according to their traffic handling function. As shown in Figure 22, those streets have been categorized as major arterials, minor arterials,

collectors and local streets. Major arterials serve the major centers of activity in an urban area, the highest traffic volume corridors, and the longest trip desires. These arterials are devoted almost exclusively to serving through-traffic needs and should be fully integrated with the rural highway system. Minor arterials augment the major arterial streets and provide service to trips of moderate length at a somewhat lower level of travel mobility than major arterials. Collector streets provide both land access service and traffic circulation functions. As the name implies, these streets collect traffic from residential local streets and channel it into the arterial street system. The local street system comprises all facilities not otherwise classified above and serves primarily to provide direct access to abutting land uses; service to through traffic is often deliberately discouraged.

The major arterials within the City are the Kenai Spur Highway, the Beaver Loop/Bridge Access Road and Kalifonsky Road. Minor arterials include the Main Street Loop, Willow Street and Airport Way; Beaver Loop Road east of the Bridge Access Road is designated a minor arterial because it provides an alternate route for through traffic not wishing to use the Spur Highway to reach Port area. Collectors are distributed throughout the City.

Existing Traffic Volumes:

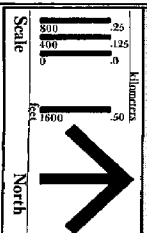
Estimates of current (1979) average daily traffic volumes on principal streets in Kenai are shown in Figure 23. For state maintained routes, the estimates are based on limited traffic counts taken by the Alaska DOT (for example, only three locations in the City were counted in 1978); on other City streets, actual traffic counts were not available and the current volumes were estimated by engineering judgment and knowledge of the traffic generating characteristics of various land uses. Thus, the volumes shown in Figure 23 are meant only to reflect current levels of traffic activity in the City and should not be used for detailed analysis purposes.



Traffic Volumes and Accidents

1234	1979 estimated avg daily traffic
⑤	1978 intersection accidents

SOURCE:
The TRANSPO Group



prepared by:
R.W. Thorpe & Associates
Seattle/Anchorage

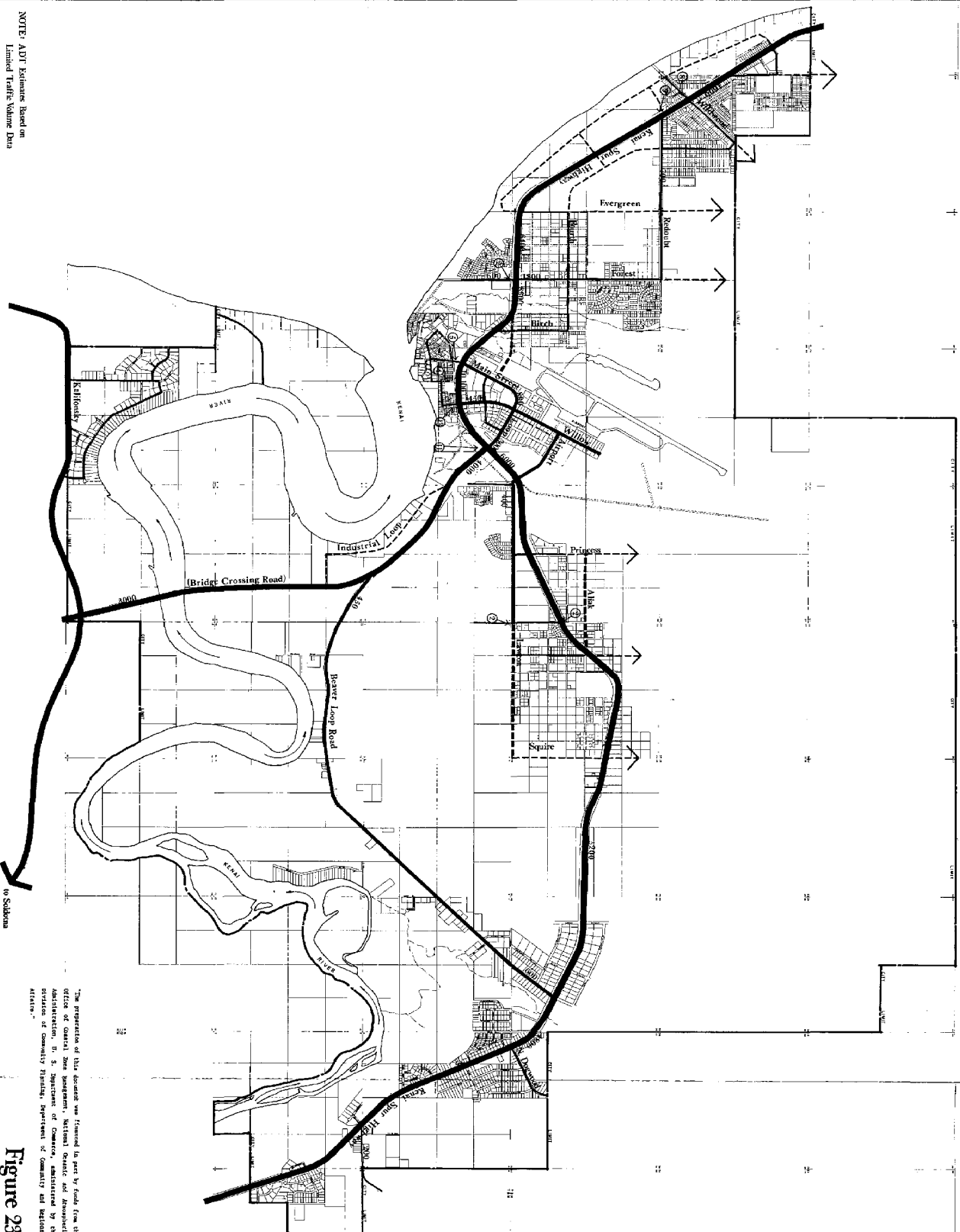


Figure 23

Given the lack of accurate base traffic information on most City streets, no attempt was made to forecast future traffic volumes on a street by street basis. It is recommended that the City undertake a comprehensive traffic counting program and develop both a reasonably accurate picture of existing traffic volumes and a forecast of future traffic flows within the City.

Planned Street Improvements:

The only street improvement scheduled for implementation in the near term is the reconstruction of Willow Street from Kenai Spur Highway to the airport. The project would be built by the Alaska Department of Transportation, and it is scheduled for construction in 1980. Current design plans call for a 40-foot paved roadway with curb, gutter and sidewalks on each side. The pavement would initially be striped for one lane in each direction with parking on both sides. At the Willow/Kenai Spur intersection, separate lanes would be provided for left and right turning vehicles.

For the future, there has been some local discussion of a potential bypass route for through traffic north of the airport which would reduce some of the traffic pressures in the downtown area on the Spur Highway. However, no studies have been made to locate such a facility and no potential funding sources for the project have been identified to date.

Potential Deficiencies:

Potential deficiencies of the existing street system fall into four general categories: capacity, safety, mobility (or operations) and engineering. Capacity deficiencies relate to the ability of an existing street to adequately accommodate the current or projected future traffic demands placed upon it. Safety deficiencies arise from conditions which make intersections or roadway sections conducive to accidents, or increase the risk of injury or fatality when accidents occur. Some streets have no apparent capacity problem, but still have significant relative delays to motorists using these routes because of operational problems. Included under engineering deficiencies are street sections

which have substandard geometrics, poor surface conditions or other physical problems.

Capacity: For planning and general evaluation purposes, street capacities under typical urban conditions are reflected by the values in Table 14 developed by the TRANSP0 Group:

Table 14

ROAD CAPACITY

Road Section	Tolerable Daily Traffic Volume*
Two-Lane	6-10,000 vpd; 8,000 vpd**
Two-Lane Plus Left-Turn Lane (Pockets)	10-15,000 vpd; 12,000 vpd**
Four-Lane	15-25,000 vpd; 20,000 vpd**
Four-Lane Plus Left-Turn Lane (Pockets)	20-30,000 vpd; 25,000 vpd**

* Upper end of range generally indicates "level of service D" conditions as defined by the Highway Capacity Manual.

** Volume beyond which expansion or alternative improvements should be considered if additional traffic growth is anticipated.

Comparison of these tabular values with traffic volumes in Figure 23 show that the physical car-carrying ability of the City's street system comfortably exceeds current daily traffic levels. Based on available data, therefore, there are no apparent capacity deficiencies in the Kenai street system. However, a more detailed evaluation of peak hour traffic flows and intersection capacities should be undertaken to verify the results of this general analysis. When area traffic forecasts become available, future travel demands should be compared to existing street capacities to identify potential future capacity deficiencies.

Safety: Traffic accident statistics in Kenai are compiled and analyzed

by the Police Department. Major accident locations are noted in Figure 23 which shows intersection and mid-block accidents from 1978. Not surprisingly, the highest accident locations occur at the major intersections along the Spur Highway in downtown Kenai (at Main, Willow and Beaver Loop); in addition, there were 10 non-intersection accidents on the Spur in downtown Kenai in 1978.

The principal causes of accidents in downtown Kenai appear to be improper turns to or from the Spur Highway and the impatience of side-street drivers attempting to cross or left-turn onto the Spur Highway. Although delays encountered at those intersections do not appear excessive by urban standards, Kenai area motorists experience almost no delays on highways outside the central city area, and a wait even 60 seconds becomes excessive by local standards.

Operations: Although the Kenai Spur Highway, with its five lanes through the downtown, provides adequate capacity to accommodate the major traffic flows today and well into the future, there appear to be operational and safety problems caused by the wide expanse of pavement which side-street drivers must negotiate to cross or turn left onto the Spur. The principal problem appears to be a perceived lack of sufficiently long gaps in the Spur Highway traffic flows for side street drivers to safely make their turning or crossing movements. Although Spur Highway volumes are light in comparison to those encountered on typical urban and suburban major arterials, some Kenai drivers appear reluctant to accept normally adequate gaps of 5-6 seconds to make turning movements. This may be due to difficulty in estimating the speed of approaching vehicles and/or estimating the time it will take them to cross three or five lanes to accomplish their desired movement. These delay problems lead to impatience and increased risk-taking by other motorists behind them.

The perceived "traffic congestion" in the downtown area appears to be the result of increased number of conflict situations encountered by motorists in the downtown, rather than the conditions caused by traffic

volume which are near the capacities of the downtown streets. Outside the central Kenai area, intersections are widely spaced along the two-lane Spur Highway, and side street traffic volumes are very low. Upon entering the downtown, however, drivers are confronted by turning movements at five major intersections in less than a mile, plus turns at numerous driveways serving adjacent commercial businesses. Motorists must watch for and react quickly to potential conflicts with other motorists who may be turning, crossing, changing lanes, etc. The potential for confusion and error is greatly increased while driving in downtown Kenai, and motorists must make many more decisions in a short time span than when driving in the rural areas of the City. The result is a general feeling of congestion and traffic problems in downtown Kenai.

The lack of any traffic signals in the downtown may indirectly contribute to the capacity and safety problems in downtown Kenai. Even one signal at a key intersection on the Spur Highway (such as Willow Street) could provide a focal point for turning movements into the commercial areas on either side of the Spur, enhance platooning of through traffic on the Spur and help organize traffic flows in and around the downtown. Motorists at nearby intersections would be assured of sufficient gaps in the main stream traffic flows to make their crossing and turning movements; this may lead to reduced accidents throughout downtown Kenai. The City Public Works Department should independently analyze signalization needs for downtown Kenai and aggressively pursue funding and implementation of necessary traffic signals on the Spur Highway with the Alaska DOT.

Engineering Deficiencies: The principal engineering deficiencies relate to storm drainage problems, uncontrolled access along arterial streets and the lack of paved collector streets in many residential areas. Additional investigation is necessary to identify and locate specific drainage and access problem locations, and to develop recommended improvements.

Recommended Circulation Plan:

The recommended Circulation Plan for the City of Kenai consists of four separate but interrelated elements: (1) A long-range Circulation Plan which shows the location of existing and future traffic facilities necessary to serve anticipated travel demands within the City; (2) a comprehensive set of street design and construction standards; (3) a set of transportation policies to guide implementation of the Circulation Plan and to ensure adequate infrastructure in areas of the city not addressed by the Circulation Plan; and (4) a Six-Year Street Improvement Program which specifies funding and implementation priorities for near-term street improvement needs. These elements must work together in order to achieve a balanced transportation system for the City of Kenai.

The recommended Circulation Plan for the City of Kenai is illustrated in Figure 22. This plan sets forth a system of major and minor arterials and collector streets to serve both the existing traffic needs of the currently developed portions of Kenai and the future needs of the growing areas of the City. Solid lines on Figure 22 indicate existing city streets, and dashed lines show potential corridors for future arterial and collector streets as the growth occurs. The resulting street pattern is closely tied to the City's Recommended Comprehensive Land Use Plan, and provides a long-term transportation infrastructure to serve the City's anticipated traffic needs for many years into the future.

The majority of the transportation facilities in the Plan already exist as city streets, and most do not require major reconstruction other than paving the gravel collector streets. Examples of this type are Forest Street south of the Spur Highway, Birch and Fourth Streets and Tinker Lane. Most of the major and minor arterial facilities have already been constructed by the Alaska DOT, such as the Spur Highway, Beaver Loop Road and Kalifonsky Road, and no major widenings are anticipated in the foreseeable future; however, minor improvements such as left turn pockets and traffic signals at key intersections will undoubtedly become necessary as area traffic volumes increase.

Three additional minor arterial streets are recommended in the plan to provide parallel alternative routes for traffic which now must use the Spur Highway. The most important new addition to the circulation system is the recommended upgrading of First Street from its intersection with the Spur Highway to the Main Street Loop. In connection with the paving of Main Street, this route should relieve some of the heavy traffic volumes and turning movements encountered along the Spur between Main and Willow.

For long-range traffic needs, the City should consider extending Willow Street northeasterly as the airport vicinity becomes more intensely developed.

Where current development trends are evident, the probable locations of future collector streets have been indicated; however, the exact alignment should respond to natural features of the land and specific development needs. In other areas where no current street pattern exists, such as the northeast section of the city, the locations of collectors and minor arterials will depend entirely on the pattern and timing of future development.

Bypass Routes: No new major arterial corridors have been identified in the Circulation Plan since no present or near future (i.e., 5-10 years) need is foreseen. The cost and environmental impacts would also weigh heavily in a bypass decision. No major bypass of the Kenai Central Business District is envisioned within the City. The need for such new highway facilities will depend on the magnitude and location of future commercial and industrial employment centers outside the City in the North Kenai area. The only likely corridor for a new route would lie generally north of the Kenai City Limits, since the only logical purpose of a new bypass route would be to provide a more direct connection between North Kenai and the Sterling Highway. The City should monitor the growth of through traffic in the City and work with the Borough and the Alaska DOT to reevaluate the need for a bypass, although the need appears to be unlikely.

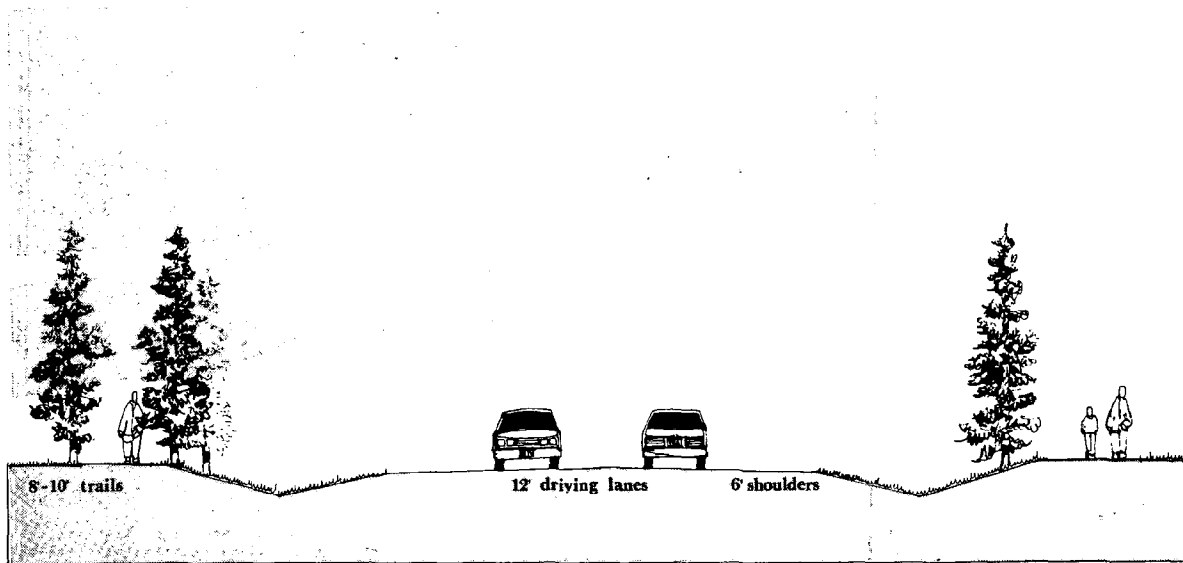
Pedestrian Trails: The City should implement a program of improving and extending the system of pedestrian trails along the major arterial routes. The existing pedestrian trail along the Kenai Spur Highway that leads from the Business District to the High School and Junior High School is an excellent example of the type of improvements that might be encouraged along all major and minor arterials. It would be desirable to extend a pedestrian trail from the westerly border of the Central Business District along the Kenai Spur Highway to the northerly limits of the City. This trail route should be planned as a part of the Section 36 design and should be accommodated, as much as possible, within the existing right-of-way. This trail will provide the community with an important link from one of the most important residential neighborhoods in the community, the North Kenai neighborhood, to the Business District and High School and Junior High School. Similar trail improvements should be considered adjacent to both the Kenai Spur Highway and the Kalifonsky Beach Road in an effort to create a complete trail system that would link the various neighborhoods to the Central Business District. Where possible, pedestrian trails should be developed along collector streets as well.

Street Standards:

In order to ensure that new streets and improvements to existing streets are properly constructed to serve their designated traffic handling functions, the City should develop and adopt a set of comprehensive design guidelines and construction standards. Development of engineering standards is beyond the scope of the analysis conducted for the Comprehensive Plan Study, and it is recommended that the City undertake an evaluation of Kenai's street construction needs and develop such detailed standards.

Guidelines: As a starting point for consideration, the following general guidelines for street development are offered for each facility type in the Circulation Plan.

A "major arterial" is a principal through street serving inter-city and cross town intra-city traffic patterns. It typically serves present or anticipated future traffic volume of 10,000 vehicles per day (vpd) or more. Because of its high volume nature, it is likely to have two moving traffic lanes and left turn lanes at intersections. Speed limits will range from 35 to 55 mph depending upon the density of peripheral development, in addition to the amount and spacing of access. Though it has not been very carefully controlled in the past, access should be limited to secondary and collector arterials, major subdivision feeder streets and principal entry points to major commercial developments. Preferred spacing between access points is 600 feet, and 300 feet should be maintained as a minimum allowable spacing. Driveway access to individual business should be prohibited. A conceptual cross-section for a major arterial in suburban/rural areas is shown in Figure 24.

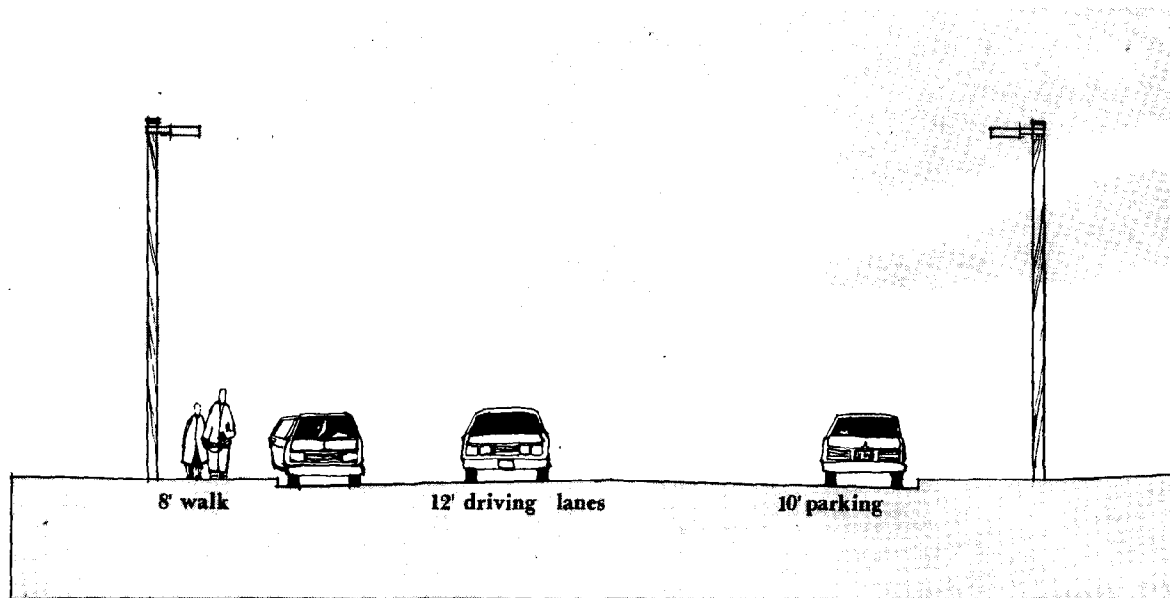


Major Arterials

Figure 24

A "minor arterial" serves a more limited cross town or intra-city traffic function and provides for inter-neighborhood travel needs. In Kenai, it would carry traffic volumes of 5,000 vpd to no more than 10,000 vpd. It may typically be a wide two-lane street; however, new or improved secondary arterial planning should allow a potential for four

moving traffic lanes. Speed limits will range from 25 to 35 mph depending upon density of peripheral development and subdivision feeder streets and local residential streets in commercial areas; access to adjacent business should be consolidated wherever possible. Direct driveway access in residential areas should be prohibited. Access spacing of 300 feet or more is preferred, and spacing of 150 feet should be adhered to as a minimum. Figure 25 presents a conceptual representation of a minor arterial in the downtown area.

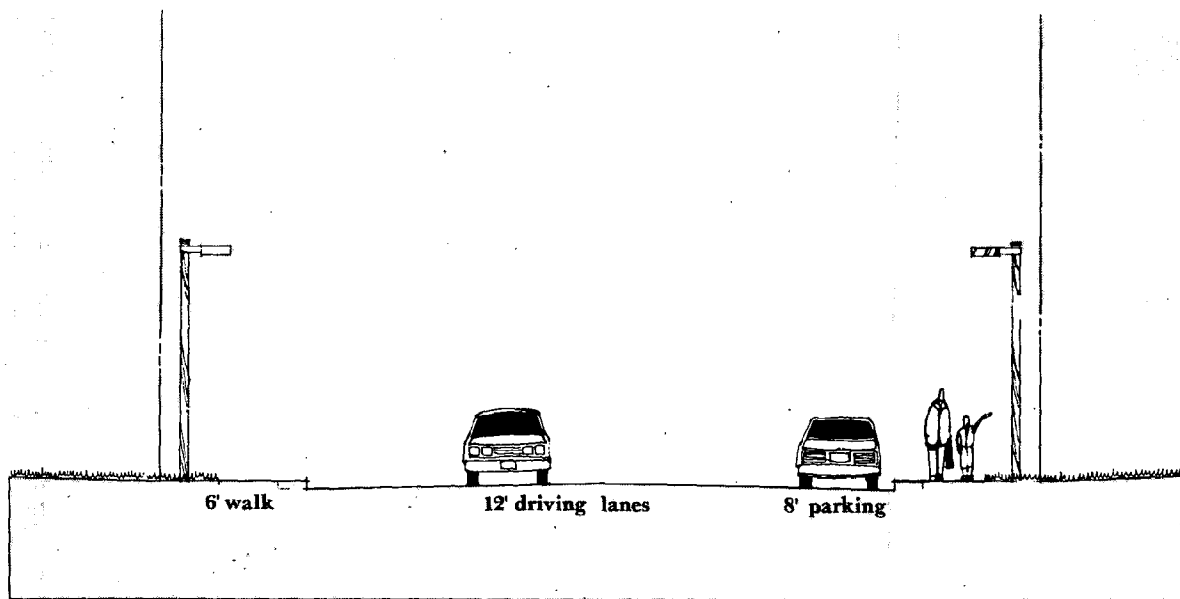


Secondary Arterials/Business District

Figure 25

A "collector street" serves intra-neighborhood travel patterns, and carries neighborhood traffic to the more major arterial streets. Traffic volumes of 1,500 to 3,000 vpd may be anticipated on a collector, though it could range up to 5,000 vpd in commercial areas. The typical speed limit should be 25 mph; however, 35 mph may be allowable in low density rural areas. A collector will typically provide two moving traffic lanes plus parking options. In commercial or industrial areas, up to four traffic lanes may be desirable. Direct driveway access is allowable; however, the use of local feeder streets and cul-de-sacs is preferred to serve the majority of abutting lots and land parcels.

"Local streets" account for all other unclassified public streets. These may range from subdivision feeder streets or "subcollectors" to short cul-de-sacs. Subcollectors of 800 to 1,500 vpd should provide for two unobstructed moving traffic lanes plus parking and bicycle trails, and may be narrower, provided peripheral parking density on one or both sides will allow sufficient "pullout" opportunity for opposing direction vehicles to pass one another. See Figure 26.



Local Streets

Figure 26

Design standards for arterial and local streets should provide adequately for the street use, speeds and volumes described above. In addition, all arterial streets should provide bicycle and pedestrian facilities on at least one side separate from the moving traffic lanes. Adequate provision must be made in right-of-way acquisition and roadway design for snow removal and long-term storage during winter months on all types of streets.

Rights-of-way and roadway cross-sections should be flexible in design standard for all classes of streets, but limited by certain minimums.

Major and minor arterials should generally have rights-of-way of 80 to 100 feet or more; collectors should have 60-foot minimum rights-of-way; and local street rights-of-way should be 50 feet minimum with 60 feet preferred.

General street characteristics of streets for the City of Kenai are presented in Table 15.

Table 15
GENERAL STREET CHARACTERISTICS
CITY OF KENAI

STREET CLASS	TRAFFIC FUNCTION	ACCESS TO ABUTTING PROPERTY	TYPICAL STREET WIDTH (in feet) ¹	GENERAL ROADWAY TYPE	ADT RANGE
Major Arterial	Mobility for longer trips, serve through traffic	Highly Restricted	48-60 100' R.O.W.	Paved, curb, gutter and sidewalks	5,000+
Minor Arterial	Mobility for short trips, access to commercial land uses	Some Restrictions	44 - 80 80' R.O.W.	Paved, curb, gutter, and sidewalks	3,000 to 5,000
Collector	Connect arterials and local streets, access to both residential and commercial uses	Some Restrictions	36 - 48 60' - 80' R.O.W.	Paved, gravel shoulders, pedestrian trail ²	1,000 to 3,000
Local	Access to commercial and residential land uses	No Restrictions	30 - 36 60' R.O.W.	Paved, gravel shoulders, adequate ³ drainage ²⁻³	less than 1,000

¹ Gravel shoulders outside developed areas; adequate provision for snow removal and storage.

² Curb, gutter and sidewalk optional.

³ Paving optional; sealcoated gravel road may be sufficient in outlying areas.

⁴ In developed areas; street width includes parking lanes.

Minimum Standard Street: There are several subdivisions within the City of Kenai which have paved local streets within their development, but which are served by gravel collector roads -- examples are Forest Drive, south of Kenai Spur Highway and Tinker Lane. These new developments generate increased traffic volumes on these gravel roads, resulting in the need for more frequent maintenance by the Public Works Department and often leading to drainage problems along the collector routes.

To avoid this situation in the future, it is recommended that the City establish a "minimum" street standard for connections between new residential or commercial developments and the nearest arterial. Developers would be encouraged to ensure that their project site is connected to an arterial by a continuous route which meets at least

minimum street standards. This might require construction of a new collector route or upgrading an existing substandard street to these minimum standards between the project site and the nearest standard street or arterial.

The preliminary recommended minimum standard street specifications are a 24-foot paved roadway with 6-foot gravel shoulders and adequate drainage provisions. This would ensure that all new subdivisions and commercial developments are served by a system of paved roadways.

Policy Recommendations:

In order to implement the recommendations of the Circulation Plan, it will be necessary for the City Council to develop and adopt transportation policies to guide the development of the City transportation system to serve current and future needs. The following policies are recommended for consideration by the Council:

1. Proposed new residential and commercial developments and subdivisions have a responsibility to ensure that the traffic generated by their projects do not create severe adverse impacts on the City street system. Any development project must be served by an adequate system of local streets, collectors and/or arterials which can accommodate the expected increase in traffic volumes as a result of the project. As a first step in determining adequacy of the street system, all new subdivisions or commercial developments must be connected to a collector or arterial by direct access (where allowed) or a street or series of streets of at least minimum standard construction. If the project site is served only by dirt or gravel roads, the developer will be required to improve a route between his site and the nearest arterial to at least minimum street standards. A minimum standard street is defined as a 24-foot paved roadway with 6-foot gravel shoulders and adequate drainage.

2. The City recognizes its responsibility to provide adequate levels of mobility and access to area residents and businesses. Within available

funding constraints, the City will undertake a program to pave and maintain existing major and minor arterials and collector streets. The City will investigate alternative funding sources, including Federal and State grant programs and City-wide bond issues, to improve existing City streets to meet the adopted standards for each facility type (major arterial, minor arterial, collector). To ensure that new developments do not overburden the existing street system, developers will be required to pay their fair share of street improvements serving their project site.

3. The development of the long range traffic circulation system in the City of Kenai will be guided by the Circulation Plan. This Plan will be reviewed and updated by the City at least every two years to ensure that it reflects current land development patterns.

4. In developing areas of the City, the location of new arterials and collector streets will be guided by the adopted Circulation Plan; specific rights-of-way and alignments for new streets will be recommended by the Public Works Director, reviewed by the Advisory Commission, and approved by the City Council. These new streets will be constructed to the appropriate street standards as adopted by the City Council and administered by the Public Works Director. The costs of new collector streets will generally be the responsibility of land owners and developers whose projects directly benefit from these streets. The costs of new or improved major or minor arterials will be primarily a city responsibility; developers and land owners whose projects benefit from construction of these streets will be required to pay their fair share of the improvement costs.

Six-Year Street Improvement Program:

Not all of the new or improved street facilities included in the Circulation Plan will be necessary in the near future, and, in fact, some may never be built as development trends within the city shift from one area to another. Certain improvements, on the other hand, appear necessary today to correct current deficiencies in the existing street

system. To guide efficient investment of public and private funds in the City's traffic circulation system, street improvement projects should be prioritized and implemented in a logical manner to serve existing and near-term traffic needs.

The Recommended Six-Year Street Improvement Program is presented in Table 16 and project locations are indicated in Figure 27. This table shows the location and type of improvement on city streets, the suggested project priority, potential funding sources and an estimate of project construction costs. Priorities were assigned in two-year increments for budgeting purposes, and these priorities reflect the TRANSPO Group's initial assessment of relative need, ease of implementation and potential funding availability. The project priorities and funding sources should be considered only as a starting point for discussion within the City for use in developing an adopted implementation program which identifies both project priority and explicit funding sources.

Table 16

SIX-YEAR STREET IMPROVEMENT PROGRAM
CITY OF KENAI

PROJECT DESCRIPTION

Street	From	To	Improvement	Lanes	Class	Priority	Funding	Cost
1. First Street	Spur Rd.	Main St	New Street	4	Secondary	A	F,S,C	405,000
2. Lawton Drive	Tinker Ln	Linwood Ave	New Street	2	Secondary	C	S,C	140,000
3. Port of Kenai Rd	Terminus	Beaver Loop	New Street	2	Collector	C	P	120,000
4. Forrest Drive	Spur Rd	Toyon Drive	Paving	2	Collector	A	F,C	64,800
5. Tinker Lane	Spur Rd	Lawton	Paving	2	Collector	A	F,C,P	93,600
6. Lawton Drive	Spur Rd	Tinker Ln	Paving, Realign	2	Secondary	A	F,S,C	218,000
7. Birch Street	Spur Rd	Fourth St	Paving	2	Collector	B	C	90,000
8. Fourth Street	Birch St	Forrest Dr	Paving	2	Collector	B	C	72,000
9. Rogers Street	Spur Rd	Lawton Ave	Paving	2	Collector	B	C	18,000
10. Walker Lane	Lawton Dr	Terminus	Paving	2	Collector	C	C	64,800
11. Linwood	Spur Rd	Lawton	Paving	2	Collector	C	C,P	110,000
12. Main Street Loop	Willow St	Spur Rd	Paving, C&G	4	Secondary	B	F,S,C,P	400,000
13. Main Street Loop	Willow St	Beaver Loop	Paving, C&G	4	Secondary	B	C	50,000
14. Cook Drive	Peninsula Dr	Main St	Paving	2	Collector	B	C	18,000
15. Fourth Signals	Forrest	Evergreen	Paving	2	Collector	C	C,P	93,600
16. Spur Road	to Willow St		New Signal	-	Primary	A	S	75,000
17. Spur Road	at Beaver Loop		New Signal	-	Primary	A	S	75,000
18. Spur Road	at Main Street		New Signal	-	Primary	C	S	75,000
19. Spur Road	at Airport Way		New Signal	-	Primary	B	S	75,000

2,471,800

Funding Codes: F-Federal C-City Priority Codes: A = 0-2 years
S-State P-Private B = 2-4 years
B-Borough C = 4-6 years

The Six-Year Program identifies 15 street improvement projects and 4 traffic signalization projects for implementation over the next 6 years. The total cost of these projects is estimated to be about 2.1 million dollars in 1979 dollars. Given typical conditions of funding responsibility and participation by jurisdiction, the City's share of the costs could be 40 to 50 percent of that total.

The most urgently needed street improvements are the paving of existing collectors -- Tinker Lane, Lawton Drive, and Forest Drive -- which serve major residential and industrial areas of the City. In addition to paving Lawton Drive, the intersection of Lawton and Walker Lane should be reconstructed to make a smooth curve from the north leg (Walker) to the east leg (Lawton) so that the collector becomes a continuous through route from the Spur Highway to Tinker Lane; Walker Lane south of Lawton would be controlled by a STOP sign at the intersection. The total costs for these initial projects is estimated at \$556,400; substantial portions of these costs could be paid by Federal Highway Administration or Economic Development Administration grants.

In addition to the above projects, the Public Works Department should encourage the Alaska DOT to monitor traffic volumes and accidents in the downtown and install traffic signals at key intersections when they become warranted. Since the programming of state funds often requires considerable lead time prior to project implementation, the city should begin to actively pursue the signalization issues with appropriate Alaska DOT officials.

Other street improvement projects in the Six-Year Program have been indicated for implementation sometime after the initial two years. Of these projects, perhaps the most important are paving the Main Street Loop from Willow Street westward to the Spur Highway, and the construction of First Street as a minor arterial from the Spur to connect with Main; this will provide a much needed "relief value" for CBD-bound traffic from the west which now must all use the Spur Highway.

Note: The Circulation Plan will be accomplished by the Capital Improvements Program to a large extent and the C.I.P. Program may vary somewhat from the recommendations herein. As such, in the case of conflicts in text, the Capital Improvements Program will take precedence.

The Business District

Concepts for the Development of the Kenai Business District

The present setting of the Kenai Business District as well as the historical traditions which add to its image and flavor, affords many opportunities that the proposed plan should utilize. The district overlooking Cook Inlet, provides a fairly compact study area. It is defined on the north by municipal properties and the airport, on the west by the drainage course that runs through Kenai Municipal Park and on the east by the intersection of Beaver Loop Road and the Kenai Spur Highway.

These concepts for the development of the Kenai Business District were based on community goals, a number of previous comprehensive plan studies, as well as the attitude survey conducted by Mundy-McCrackin & Associates, Inc. Current zoning and design standards, together with input from City staff members, City boards and commissions, were also important in the development of the business district plan.

The elements of the Kenai Business District Plan can be grouped into four general categories:

- A. The structure and image of the entire district, including buildings and landscape.
- B. Development of individual properties and buildings.
- C. Circulation and parking.
- D. Signing and street graphics.

There is a desire to develop a Kenai Business District that is expressive of the Kenai community. The business district, like the community in general, should maintain and express a personality and image of its own, providing efficient service to the community as a shopping and financial center, as well as being visually attractive. The development concept should be one that is in balance with the natural environment as well as consistent with economic needs of the community. In addition, development within the business district should be

consistent in scale with the developing community in contrast to a regional or strict commercial character apparent in other communities. The plan for the Kenai Business District must consider the existing structure of the district - buildings, circulation, shopping and zoning patterns - and its problems and opportunities. Ideally, the business district should complement the informal, residential character of the peninsula community while maintaining a structured personality of its own, developing as a coherent element within which enterprises and groups of activities can maintain individual identities in harmony and balance with the total concept. Figure 28 illustrates the existing development and circulation patterns of the business district.

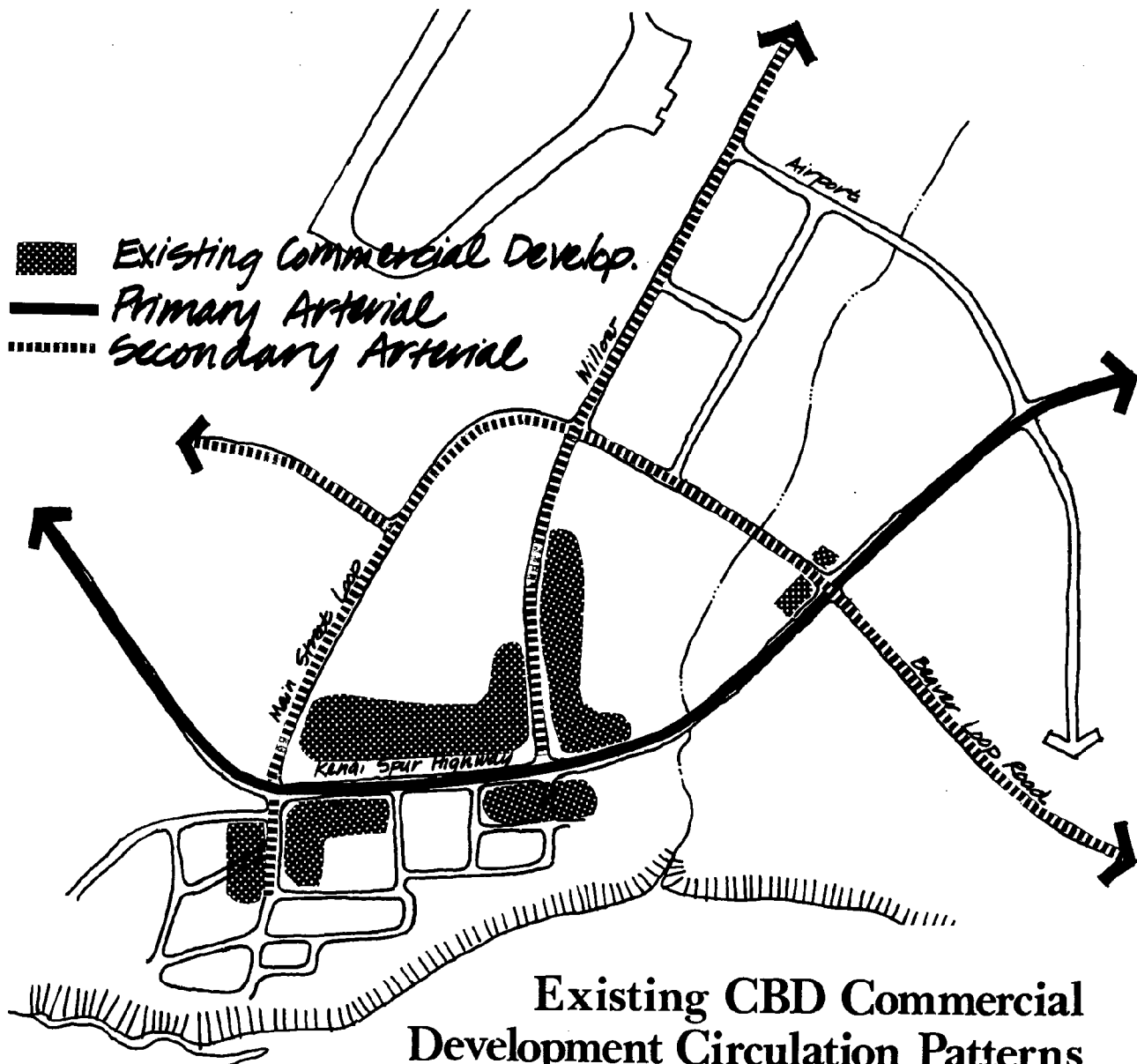


Figure 28

Today the Kenai Business District necessarily consists of an automobile-related commercial activity center. The district is organized in a relatively loose, informal, low density pattern. This automobile-oriented pattern is necessary and will continue for the foreseeable future; therefore it should be assumed in any plan. However, increased opportunities for pedestrians and outdoor activities within the business district should be provided. Development will increase over time and groups of compatible uses should be encouraged to cluster together to strengthen their images as nodes of complementary and mutually attracting activities.

There are three ways by which these concepts may be realized. First, there are actions which are the responsibility of the public sector such as street improvements, utility undergrounding, landscape programs, public transportation, drainage and the location and development of public and quasi-public buildings. The City is also responsible for initiating and implementing the ordinances and codes which guide the development within the private sector. Second, individual property owners and businesses can undertake new development and improvements to existing properties on a largely incremental basis over time. Third, cooperative actions may be undertaken by private property owners and/or the public sector. These actions might include development of joint commercial structures, parking and service areas, pedestrian spaces and walkways. There may be ways by which the City may encourage improvements to existing developments such as landscape planting within parking lots by crediting actions through tax breaks or improved leases. One of the problems identified in the Attitude Survey was the lack of a coherent image, especially with the business district; a number of comments were received regarding the rather poor image the business district now presents. Therefore, one of the primary goals of the Business District Plan is to link the different parts of the business district together into a coherent whole. In cases where some activities may not be compatible with the goals of the district, either because of their position, location, or type of activity, and where they may remain in the same location for some time to come, it may be desirable to establish buffers in order to separate, rather than to link them together.

Economic Aspects of the Business District Plan

The economic study, conducted by Mundy-McCrackin & Associates, Inc. as part of the Technical Appendix, projected a 1990 demand for approximately 70,000 square feet of additional convenience and comparison shopping floor area. At the present time, there is adequate land zoned within the central business district to accommodate this projected demand. However, one of the basic problems identified by the local staff and commissions has been the tendency for private developers to locate outside of the City due to the relative ease of development and the lower level of Borough taxes. The business district development plan, therefore, must deal with two basic questions: 1) Given the large amount of undeveloped commercially zoned property in the business district, how can private development be encouraged on these lands? 2) Since much of the land within the business district is in City ownership, how can lease or sale situations be created that are attractive to the private developer?

At the present time, the total area within the central business area will not be occupied in the foreseeable future for commercial purposes. Most of this land is in public ownership by the City and available for either lease or sale. The City is, thus, in a rather unique position in that there are few communities that boast the ownership and potential control of such an important and extensive amount of land in a prime central area of their town. The problem, as presented above, of businesses either leaving the business district or new businesses not locating there by choice must be dealt with by the City and the business community. The land use inventory identified a number of commercially zoned pieces of property in outlying areas that could tend to compete with a viable central business area. Commercial zoning outside of the central business area is at the present time considered excessive by the consultants and cannot be justified based on the population or economic projections. The basic problem that arises is that the excessive amount of commercially zoned land outside of the central business area tends to compete with business located in the central area and encourage a dispersed business pattern. As suggested in the land use element of the

Comprehensive Plan, the City should actively participate in encouraging new development within the business district through sale, continued lease, or application of the transfer concept to City-owned properties.

Other very important parcels within the central business district are those which surround the intersection of the Beaver Loop Road and the Kenai Spur Highway. The concept presented in this Business District Plan is to encourage a major shopping area at this intersection that would complement the existing shopping facilities at Carr's Mall. The key to the success of this concept is the ability to attract a major anchor tenant which should be complementary to the existing Nordstrom by offering goods directed to a different segment of the comparison shopping market.

The development of a major shopping area at this intersection would present what has been identified as an extended mall concept. A common approach to shopping center development usually includes two major tenants located at opposite ends of the project with a variety of service-oriented uses, complementary to the major tenants, located between the two. The development of a major shopping facility at this intersection would tend to strengthen the service-oriented businesses that would exist between the present business district and the intersection of Beaver Loop Road. The development of a new City Hall to the north of this shopping area would complete the triangle of development and would tend to further encourage commercial development in the present business district.

Present Opportunities for the Business District

The present mix of commercial land uses in the business district presents a very healthy combination of services as well as shopping-oriented uses. As pointed out in the economic study, employment base of the community is deficient in perhaps only two areas: 1.) The number of professional office services; and 2.) The number of government-based

services. Circulation through the business district is, for the most part, efficient with the Kenai Spur Highway and Main Street providing and defining access in the community. The quantity of parking is good most times of the year, with problems experienced only during peak shopping times. An extensive amount of vacant land in the business district is available for development and with much of this land is in City ownership, the City is in a prime position to encourage and guide future business activity. Figure 29.

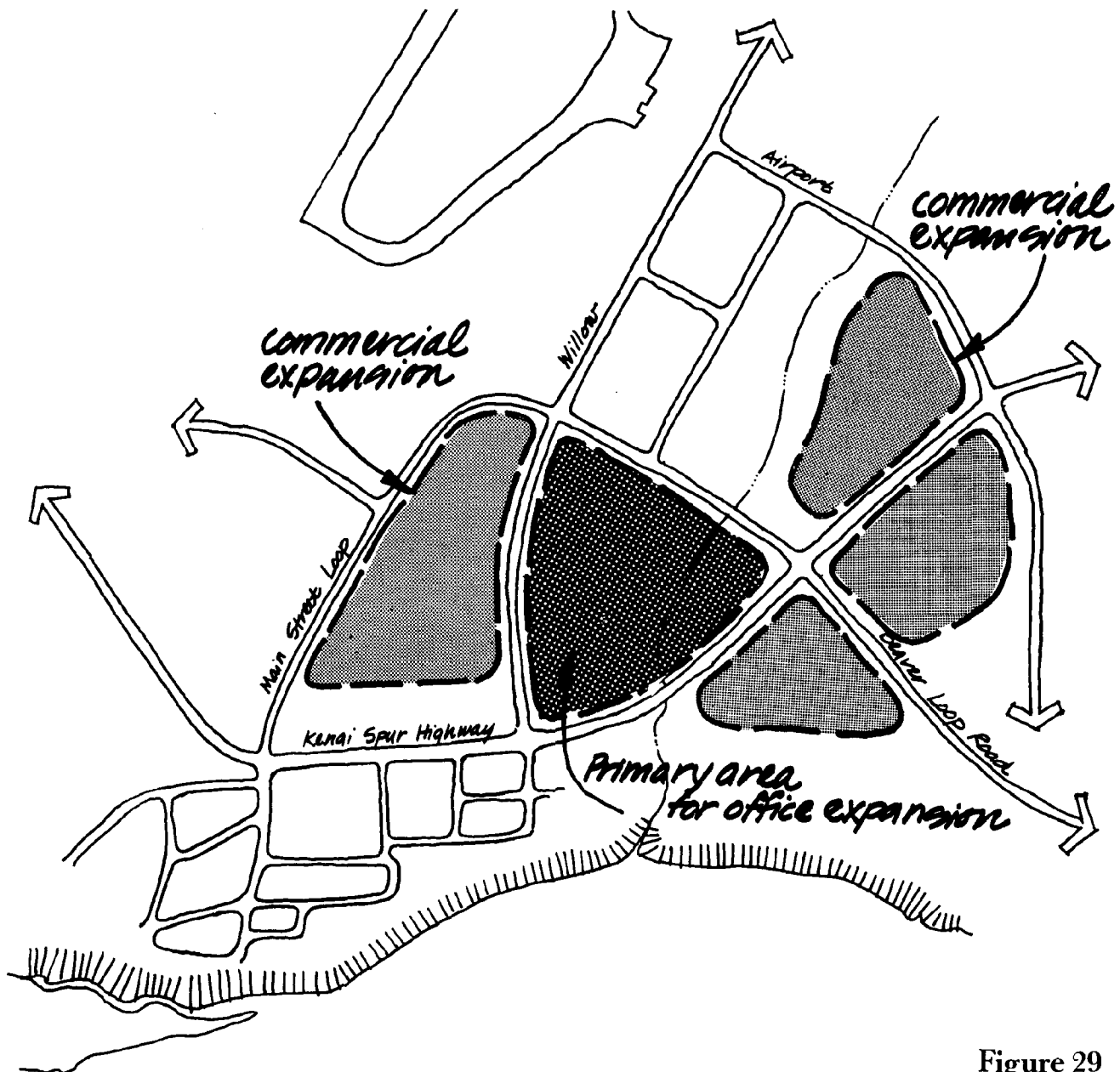


Figure 29
Potential Development

Difficulties to be Considered

Two chief difficulties need to be considered in the development of the Business District Plan. As expressed in the Attitude Survey, one of the problems with the existing business district is its lack of a coherent and visually attractive image. Contributing to this problem is Kenai's extreme climate, necessitating continuous snow removal throughout the winter months, both on City streets and in larger parking lots. In addition, there are the climate-related problems of snow storage and drainage during spring runoff.

The other primary difficulty is the dispersed pattern of existing building development. Part of the problem again involves the adverse climate which hampers most foot travel during the winter months, thus encouraging automobile traffic. The result is a situation where circulation at any time of the year from one business to the next becomes difficult without the use of an automobile. (Note: The one exception to this general condition is Carr's Mall which functions well as a community shopping center although it lacks landscaping, street furniture, and uniform signing.)

Business District Development Goals and Guidelines

A. The Structure and Image of the Business District.

The intent is to develop an overall coherent image for the business district and shopping area within a natural setting. Goals are as follows:

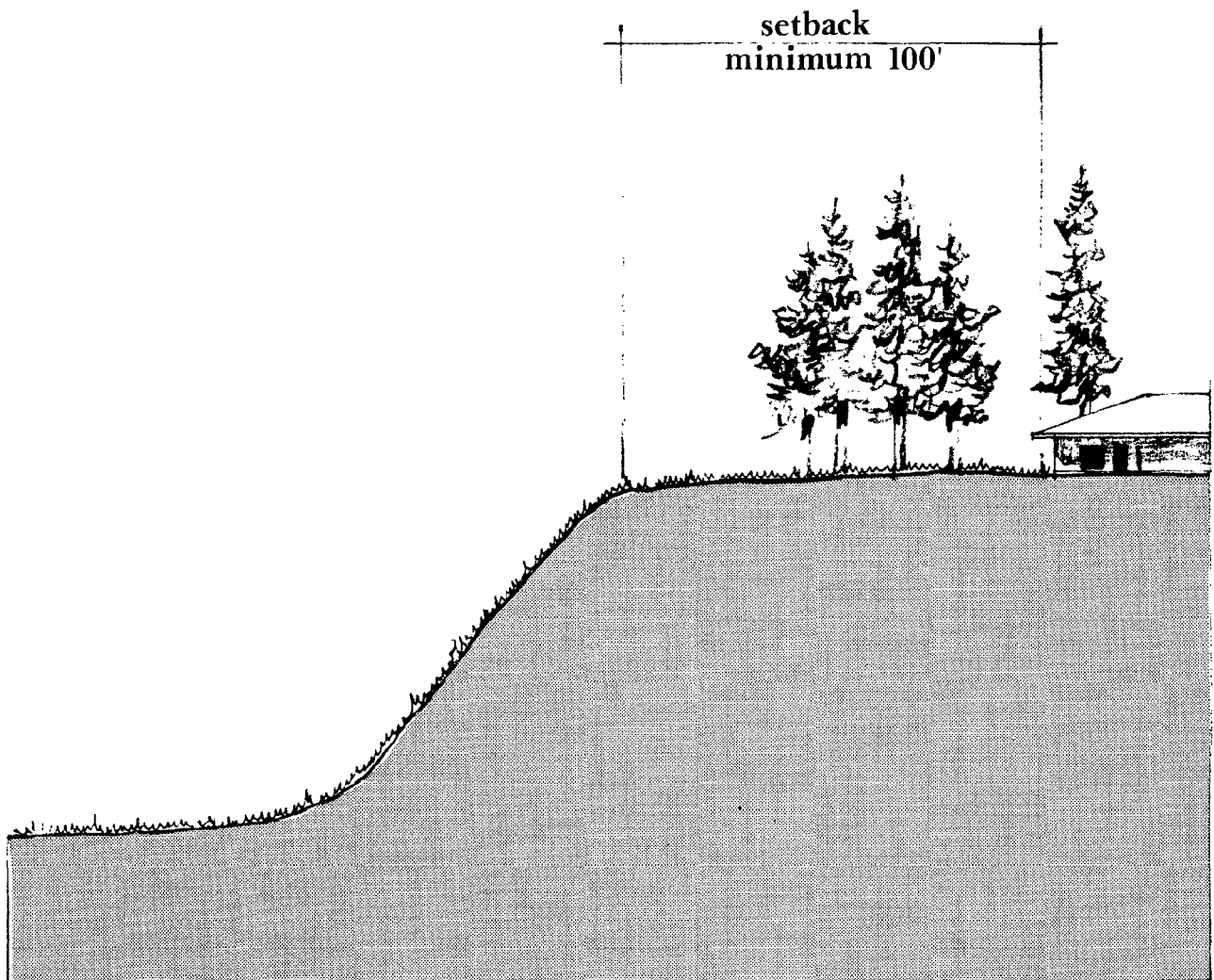
1. Conserve and enhance the wooded ravines and properties on the perimeter of the business district as well as the wetlands to the north of it.
2. Maintain the community scale in balance with the semi-wilderness environment through height and development controls.
3. Extend the natural wooded perimeter into the business interior in a more structured, uniform manner through extensive landscaping of parking lots and areas adjacent to properties. Encourage the retention of all existing vegetation as a primary landscape program.

4. Identify and maintain primary entrances into the district that are reflective of the qualities of the peninsula and provide a transition to the Kenai Business District as a whole.
5. Develop a park or town square as a visual focal point and central gathering place for business district events. Encourage the development of mixed uses within the business district including office, government, recreation and educational uses.
6. Encourage the expansion of the business district and the definition of its easterly boundary at the intersection of Beaver Loop Road and the Kenai Spur Highway.

Specific suggestions for implementing the above goals are discussed below.

Specific Criteria

- 1a) Preserve the wooded ravine that defines the westerly extent of the Kenai Business District. This ravine is located immediately west of the Mission property and extends to the north along City-owned property adjacent to the airport.
- b) Preserve the wooded ravine that defines the easterly boundary of the business district and drains the area just to the west of the high school.
- c) Create and preserve a setback or buffer from the sea cliff immediately adjacent to the mouth of the Kenai River. A minimum setback of 100 feet from the top of the slope should be adopted by the City. See Figure 30.
- d) Maintain public ownership and control of properties to the west and north of the present airport in order to protect this area from development. The airport and wetland areas to the north of the



Shore Cliff Setback

Figure 30

business district provide the primary physical boundary of the business district.

- 2a) Height controls within the business district should be considered as follows:

Area A - 2 to 3 stories

Area B - 4 to 6 stories

Area C - 3 to 4 stories

Buildings may exceed the heights described above at the discretion of the Advisory Planning Commission. See Figure 31.

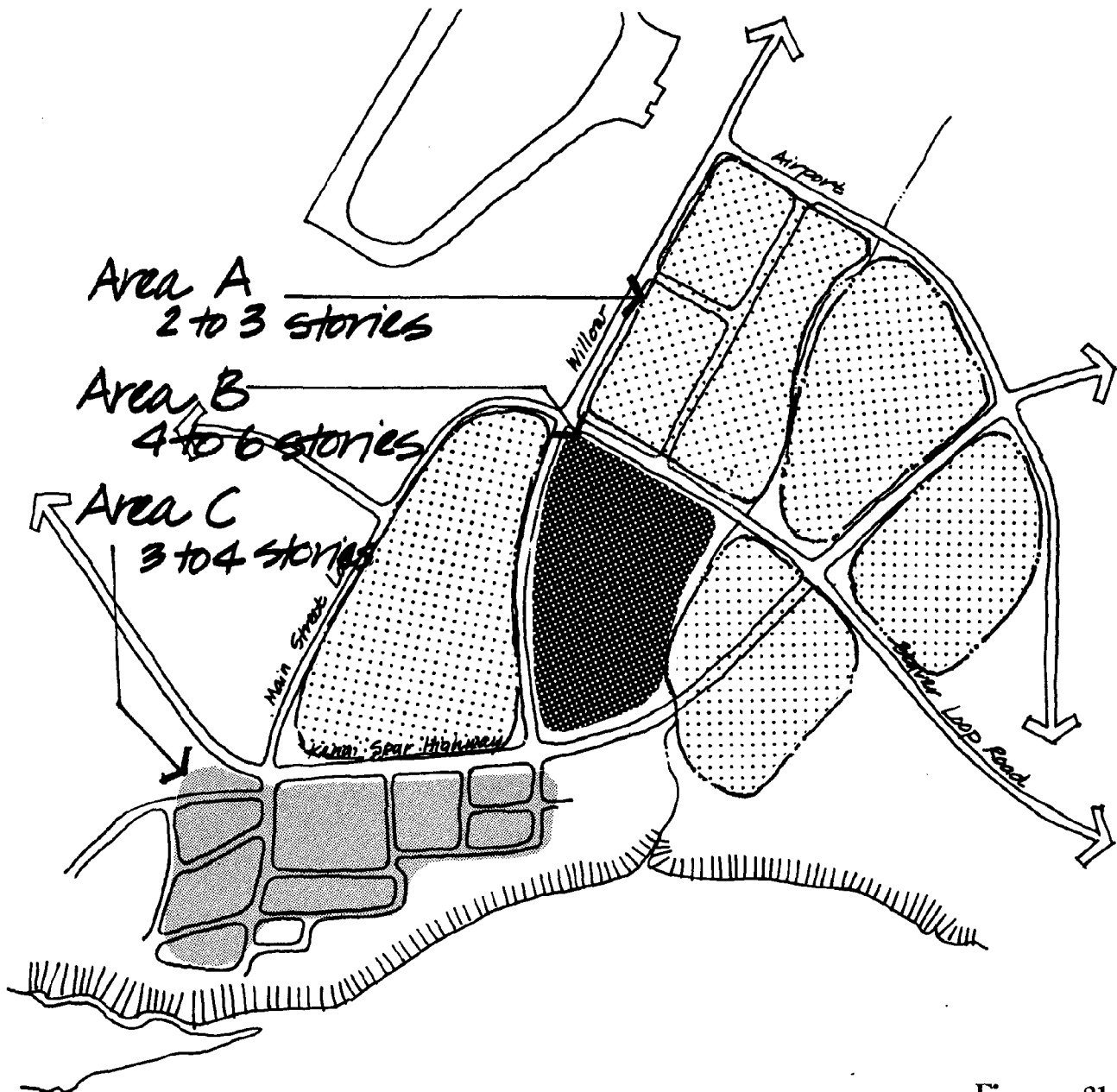


Figure 31
Building Heights

- 3a) Insure that those areas where significant stands of vegetation exist within the business district, are maintained in as natural a state as possible.
- b) Land clearing within the business district should be directed by zoning or subdivision policies. Guidelines should be established governing the clearing of trees of a certain diameter and any underbrush of significant size or unique species. Figure 32.

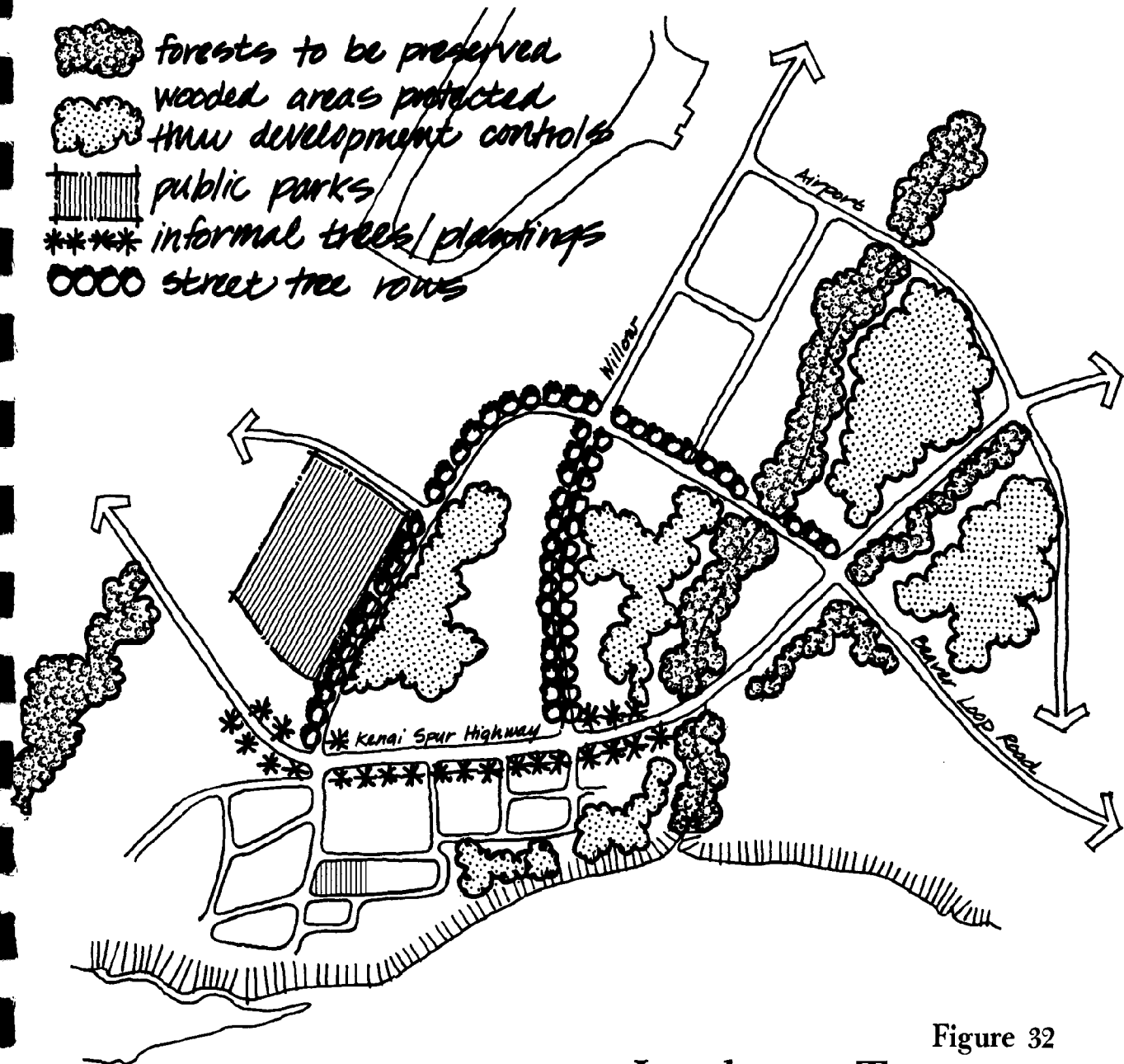
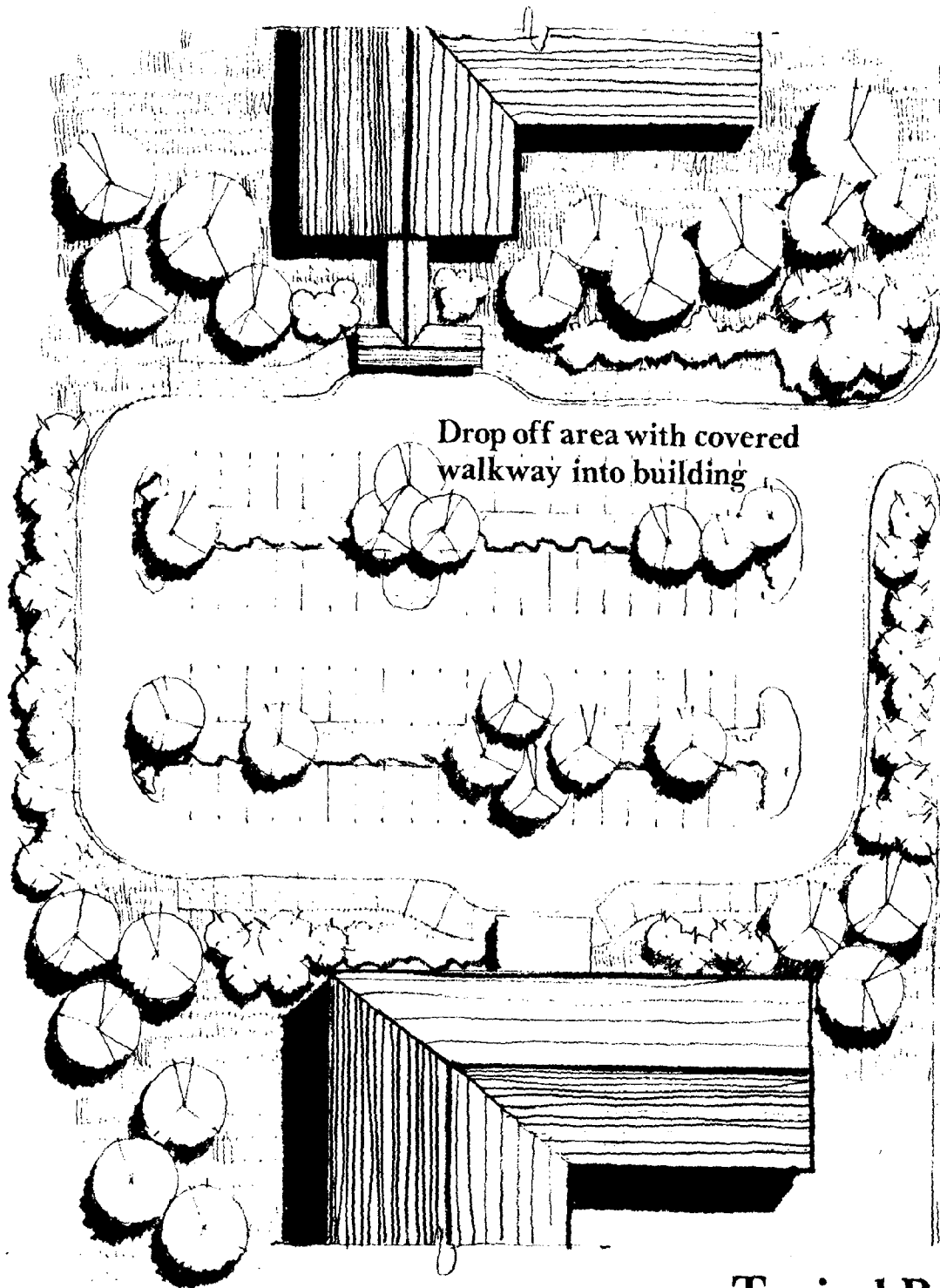


Figure 32
Landscape Treatment

- c) Extensive landscaping of private parking lots should be encouraged.
- d) Parking lot landscaping should be consolidated into large planting islands rather than scattered in large numbers of smaller islands. Large planting islands or planting areas can then double as drainage ways or for snow storage. The large island approach also minimizes conflicts with snow removal processes. Figure 33.



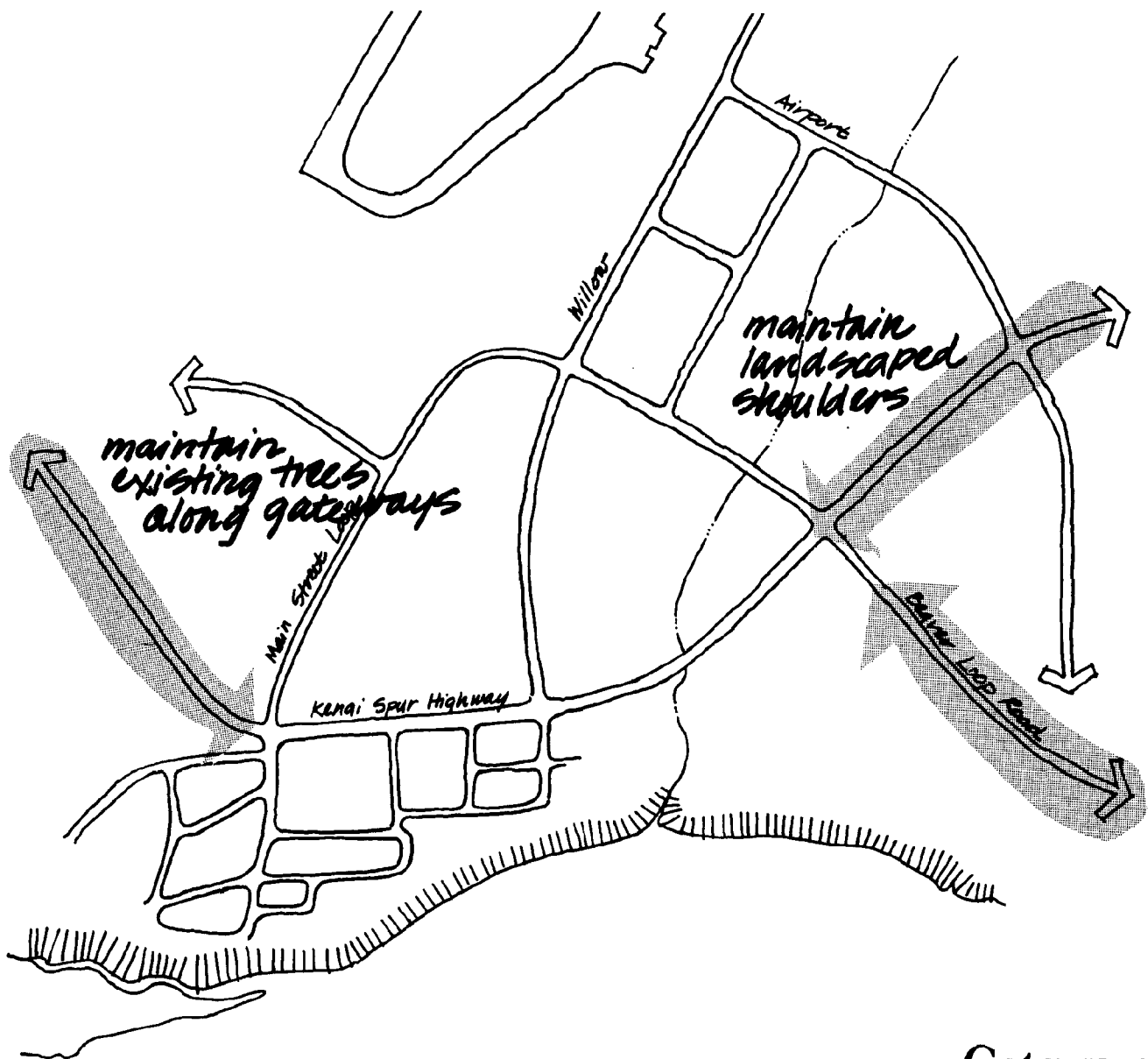
Drop off area with covered
walkway into building

Wide planting
islands provide
an area for snow
removal in winter-
trees provide visual
relief from pave-
ment

Typical Parking Lot

Figure 33

- e) As available, landscape materials should be of native Alaskan stock.
- 4a) Major gateways to the business district exist in the vicinity of the Kenai Spur Highway and the Mission property at the westerly perimeter and at the intersection of Beaver Loop Road and the Kenai Spur Highway at the easterly perimeter. These entrances are not single points but are approaches several hundred feet long.



Gateways
Figure 34

Existing natural vegetation should be maintained in these areas as much as possible. Where new development occurs or improvements are undertaken in these areas, planting should be increased so that the natural landscape dominates the experience. Although private businesses should be allowed identification signs in these areas, the design and quality of these signs should be in harmony with the natural quality of the area. Figure 34.

- b) The Kenai Spur Highway is a state-owned and operated facility. At the present time there is approximately 300 feet of right-of-way at the gateway approaches. Only a portion of this area, roughly 80 feet, is in roadway improvement. The remaining areas are planted in natural vegetation and grasses. The extensive amount of right-of-way in these areas is an effective tool in maintaining significant setbacks and the natural quality of the gateways in these areas. Every effort should be made to maintain the wide right-of-way width. Any widening of roadway improvements in these areas should be carefully scrutinized.
- 5a) The property presently occupied by the old City Hall and operated by the Kenai Arts Commission shall be developed as either: A) a public square including landscaping, childrens' play areas and spaces for public gatherings and activities (an ice skating rink for example). The square should be designed to attract people of all ages and should be surrounded by a mix of residential and business uses or, B) a square with most of the activities and purposes described above but developed as part of a private commercial venture and linked through pedestrian ways to neighborhood, residential and business activity nodes.
- b) The tract of land between the present police and fire station and municipal library should be set aside for a new City Hall and public square. The development of this site as a major focus within the business district would significantly contribute to the overall cohesive image of the business district. At the present time, the

City Hall facilities are crowded into an inappropriate space within the airport building. The development of the new City Hall complex should attempt to improve the relationship between the existing fire station and library by providing spaces for outdoor activities between these two buildings. A unified parking scheme should be developed which encourages parking behind the buildings, hidden from the street. Covered or enclosed walkways should be developed between all public structures.

- c) The large tract of undeveloped land to the west of Main Street and just south of the airport should be considered as an ideal spot for a large city park. Because of the parcel's relationship to the airport, it would be an ideal location for athletic fields for such sports as baseball, softball or soccer. Access to this parcel would be excellent from a major collector, such as the Main Street loop. The parcel's location adjacent to a proposed open space system also provides the opportunity for extending pedestrian trails that could further link the West Kenai neighborhood with the Business District without having to cross the Kenai Spur Highway. For more information regarding this proposal, please refer to the Park and Recreation element of the Comprehensive Plan.
- 6a) Encourage the development of professional offices to the south of the Kenai Spur Highway in the area that is now zoned central commercial (Old Kenai).
- b) Encourage multi-family development within Old Kenai. But, insure that new structures take advantage of views available and respect the existing historical character established by the Russian Orthodox properties, Old Fort Kenai and such structures as Moose Meat John's cabin.

B. Development of Individual Properties and Buildings

The intent is to develop individual properties and buildings that contribute to the overall coherent image of the district, while strengthening and maintaining the identity of groups of stores and individual enterprises. Goals are as follows:

1. Encourage the development of buildings of good architectural quality, which are in character with the present scale of the business district.
2. Encourage a continuity of style, materials, color, signs and lighting within clusters of buildings.
3. Encourage the provision of covered or enclosed walkways and pedestrian spaces within and between clusters of buildings.
4. Encourage the individual expression of businesses within clusters of buildings, through the display or identification of products or services.
5. Encourage grouping of complementary, mutually supporting uses, located in areas providing levels of accessibility appropriate to the type of activities.

Specific suggestions for implementing the above goals are discussed below.

Specific Criteria

All building development within the Kenai Business District would be subject to applicable building codes and zoning ordinances and, in addition, would be reviewed by the Advisory Planning Commission, utilizing the following criteria.

- 1a) As perceived from driving through the Business District, discourage the competition for attention by any one individual business, at the expense of identifying clusters of related business enterprises.
- b) If a building or buildings in an area are of a quality considered supportive of the overall Business District environment, then a proposal for a neighboring addition may be requested to continue or complement that existing expression. Elements which should be considered include landscaping, building materials, (normally wood, masonry or steel), roof form, parapet heights, locations of entrances and service areas and signs and street lighting.
- 2a) Lessees of City-owned land in the Business District should be encouraged to jointly plan developments. (i.e., access, landscaping, design; signing.)
- 3a) New development within the Business District should be encouraged to incorporate outdoor covered pedestrian spaces. These outdoor spaces should include benches, planters and covered walkways designed and located such that they could be extended or expanded into adjacent properties or developments.
- 3b) Siting of buildings should consider the location of entrances, services areas, parking and the provision of usable outdoor space in relation to existing site opportunities and adjacent building developments. Whenever possible, development should be encouraged to link to existing, adjacent buildings. Where there is no adjacent neighboring development, consider the potential activity and plan the development to encourage a future neighboring relationship.

- c) Barriers such as walls, fences or unpenetrable topographic conditions at property lines should be discouraged. When possible, pedestrian circulation, especially in large parking lots should be planned to efficiently and safely move people through traffic.
- 4a) Once the automobile driver becomes a pedestrian, a rich level of variety and diversity between enterprises may be experienced. Encourage the expression of various individual activities, by means of architectural details, identification and display of products or services offered, landscape treatment and signs.
- 5a) The automobile-serving commercial facilities, such as service stations and drive-in restaurants, should be located near the important intersections along the Kenai Spur Highway, which include Beaver Loop Road, Willow Road and Main Street. These are intersections of high visibility and it is anticipated that traffic in these areas will increase in the future. These activities, especially the Beaver Loop Road intersection, are located near gateways to the Business District and careful consideration should be given to their setback and design treatment along these major entrances to the Business District.
- b) Shopping goods, offices and other more pedestrian-oriented facilities should be located and encouraged to expand north of the Kenai Spur Highway with the Business District Loop Road providing the northerly and westerly boundaries. Where possible, automobile-oriented uses, such as service stations and drive-in restaurants, should be encouraged to be clustered so as to take advantage of common access points, off-street parking and perimeter landscaping.
- c) The presently undeveloped area to the north of Kenai Spur Highway and to the east of Willow Road should be developed for office and professional uses. This area is in an ideal location in terms of access and proximity to the proposed complex of government buildings.

C. Circulation and Parking

Plan and develop circulation and parking systems within the Kenai Business District to enhance the efficient movement of traffic through the Business District and to provide opportunities for safe pedestrian circulation. Goals are as follows:

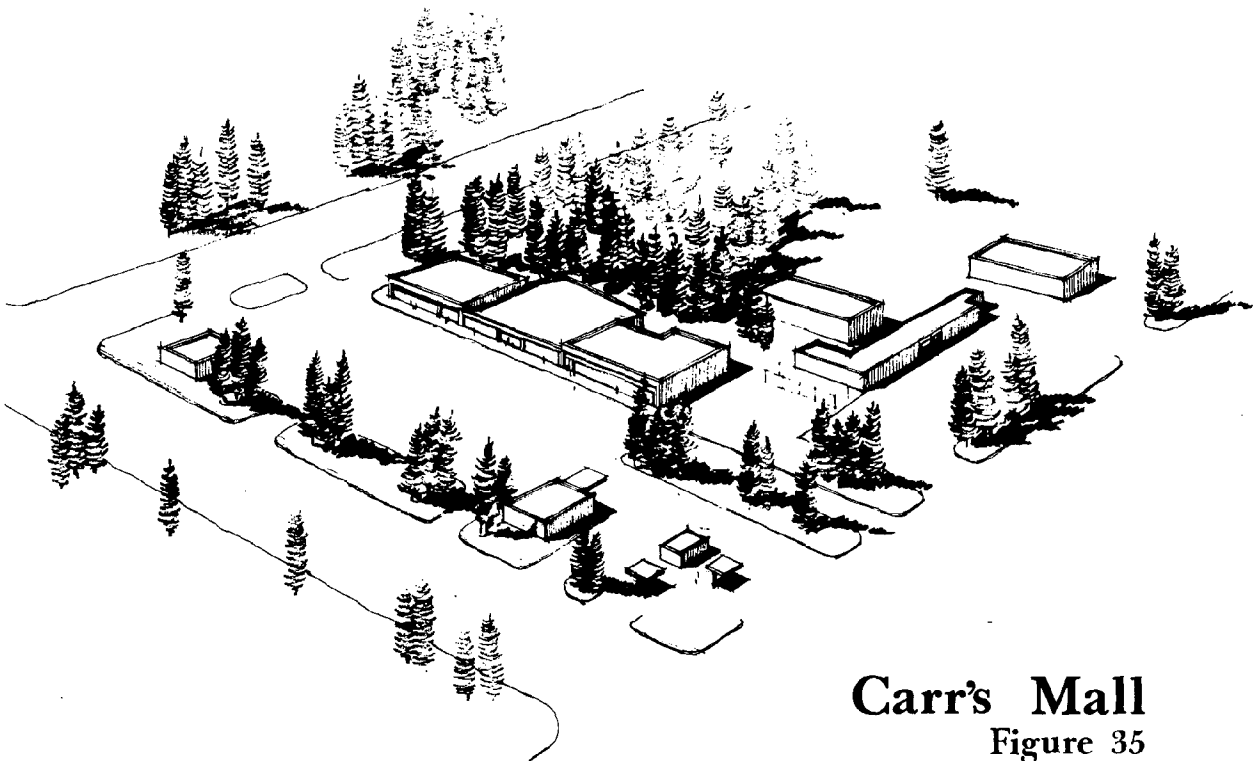
1. Develop public right-of-way improvements that will accommodate the intended volume or projected volume of traffic on the various collector and arterial streets of the Business District.
2. Insure the adequate provision of parking for both pedestrian and service vehicles, consistent with the intended use and design such that it enhances both the proposed development and the overall character and image of the Kenai Business District.
3. Develop space within public rights-of-way and parking lots for pedestrians and bicyclists, free and safe from vehicular traffic.

Specific Criteria

- 1a) The Kenai Spur Highway exists as the primary circulation corridor through the Kenai Business District. In order to insure efficient and safe movement along the Kenai Spur Highway, driveways and curb cuts should be minimized, especially when there is a collector street that abuts a proposed development which can provide a secondary point of access. At the present time a sidewalk exists on both sides of the Kenai Spur Highway as it runs through the Business District. Between the sidewalk and the improved road surface is a very small planting area, approximately 3 feet wide. This planting strip has been a focal point of some citizen concern, primarily due to its lack of maintenance. Two courses of action have been proposed for this island: 1) Retain the planting strip and seed the area with wildflowers. This approach would provide a visual amenity and virtually eliminate the need for mowing the strip during the

spring and summer months. 2) Since the sidewalk that runs adjacent to this planting strip is only 5 feet wide, it would be desirable to have a wider walkway through the Business District that could perhaps accommodate pedestrians as well as bicycle traffic. The second alternative, therefore, would be to eliminate the planting strip and expand the sidewalk to the roadway improvement.

- b) Along the Kenai Spur Highway as one drives between Willow and Main, the rich, forested character that is apparent in other areas of the town certainly is absent from this area. The City should undertake a planting program that would begin to restore some natural vegetation to both sides of the right-of-way in this area. The planting scheme should be informal and designed such that a significant amount of the visibility of the adjacent businesses is retained. Such a scheme is illustrated in the following sketch. When considering new developments along the Kenai Spur Highway in this area, private lessees should also be encouraged to incorporate native landscape planting adjacent to the roadway. Figure 35.



Carr's Mall
Figure 35

- c) Willow Street from the Kenai Spur Highway to the airport should be developed to include two traffic lanes in each direction, curbs, gutters and sidewalks on both sides of the street. Sidewalk widths of 6 to 8 feet along this right-of-way would be most desirable. The most desirable planting approach for Willow Street would be the incorporation of deciduous street trees, planted at least 30 feet on center. Willow Street is one of the most important links between the central business area and the airport and, as such, provides an important first impression for arriving visitors from the airport. Street trees proposed for Willow should be of the native variety, such as paper birch and should be planted at least 10 feet from the roadway improvement in order to minimize conflicts with snow removal during winter months. The planting scheme developed in the design guidelines herein presented, should be required of all new developers within the Business District.
- d) Main Street Loop Road provides the northerly definition of the Central Business District and separates the airport industrial uses from the business- and office-oriented uses of Kenai's financial and commercial districts. As such, it should be considered as a visual edge and should well define these two commercial areas. The Main Street Loop Road should be developed with one traffic lane in each direction and a wide enough improvement to accommodate some on-street parking. A street tree planting program, in addition to the proposed roadway improvements, is also an important part of this proposal. Again, deciduous trees of native varieties, such as the paper birch, should be planted on both sides of the right-of-way, beginning at the intersection of Beaver Loop and Kenai Spur Highway, all around to the intersection of Main Street and the Kenai Spur Highway. Along this entire length, sidewalks should be provided immediately adjacent to the roadway, a minimum of 6 to 8 feet wide. In some locations, it may be desirable to expand the width of the sidewalk, especially in areas of high pedestrian activity. This treatment has been successfully incorporated in the sidewalk improvements in front of the State Services Building.

- 2a) Encourage parking lot design so that automobiles are parked perpendicular to commercial structures, so that pedestrians can walk from their cars without having to dodge parked cars or cross a number of driveways.
- b) Because of the winter snow removal problem, parking areas should be kept free of such barriers as curb stops and small planting islands. When planting islands are incorporated into a parking lot, they should be fairly large (minimum 600 sq. ft. in size) and located to facilitate efficient snow removal operations. Figure 36.
- c) Joint parking development by private lessees and/or the City should be encouraged. Joint parking development may decrease the overall parking requirements for any two developments.

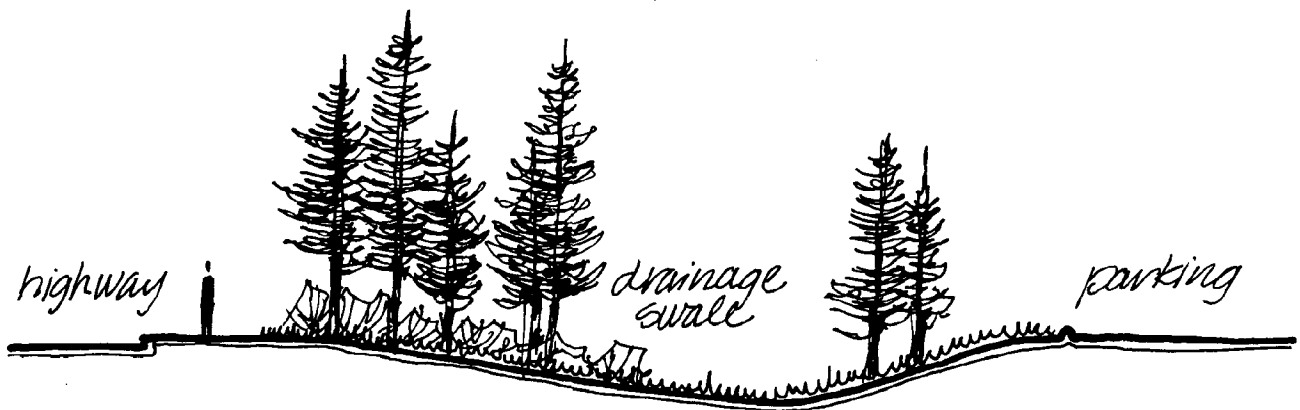


Figure 36
Snow Storage

- 3a) Opportunities for pedestrian-oriented spaces should be incorporated whenever possible as part of development in the Business District. Site planning for buildings and parking should incorporate any

excess areas that might be desirable for outdoor living spaces. For example, in the instance of fast food restaurants, any opportunity to provide outdoor eating areas should be encouraged. These provisions are especially important when you consider the severe climatic conditions imposed during most of the year, thereby making it desirable to take full advantage of those times of the year when good weather makes it possible to utilize outdoor spaces.

- b) Improvements in the Business District should be encouraged to incorporate street furniture that enhances the pedestrian quality of the street scene. Such items as benches, litter receptacles and planters are all important in making the Kenai Business District streets a desirable place to be.
- c) Signing and street graphics standards should be employed. (Refer to the proposed Kenai Zoning Ordinance which outlines guidelines for signs).

Wetlands

Introduction to the Wetlands Study

The purpose of this report is to depict the important functions of the wetland ecosystem, their affect as a parameter to development of the city, and to clarify the seemingly complex governmental regulations imposed on proposed development in wetlands. As apart of this study element is an inventory of existing wetlands and clarification of areas mapped as such to date by various federal, state and local agencies.

The City of Kenai has benefited from of its advantageous location on the mouth of the Kenai River. Commercial fishing, tourism attracted by sport fishing and hunting, and the resultant businesses comprising this regional trade center exist mainly because of the economic viability and recreational quality derived from the natural resources of this area.

The wetlands are one of the most notible characteristics of this water oriented town. Wetlands have been defined by the Corps of Engineers as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." Approximately 10,200 acres within the City have been identified as wetlands. This represents approximately 51 percent of the City.¹ See Figure 11 for lands holding building constraints.

Existing Conditions

Predictably, nearly all development in the City has occurred on easily developable lands. The abundance of land with good soil and the combination of high development costs and unavailability of financing for development on soils with high water tables has influenced development to locate on the most buildable lands.

¹ This figure was computed by the consultant firm by examining soil conditions within the City.

At this time it has been estimated that of the 7,100 acres of undeveloped land which have good soils, by 1990 less than 550 additional acres will be needed for residential and commercial development.² As indicated on the following table, the amount of vacant developable land far exceeds the projected needs.

Table 17

DEVELOPMENT ACREAGE NEEDS

Land Use	Current Zoning No. of Acres	Developed Lands No. of Acres	Projected Need (1990) No. of Acres
Residential	13,318	1,135.6	150-500
Commercial	370	47.7	15-50
Industrial	839.8 ²	1,436.7 ²	-- ²

Under the present zoning classification the airport is zoned conservancy but the land use classification is industrial, explaining the discrepancy between zoning and land use acreage. It has been calculated that approximately 1,140 acres are airport lands. From these figures it has been estimated that approximately 542 acres of the industrial designated lands are undeveloped, which should accommodate the industrial land needs for the city through 1990.

Value of Wetlands

Through the enactment of the Federal Water Pollution Control Act Amendments of 1972, the U.S. Congress established by policy and law that wetlands have important public benefits in terms of water quality and water quantity, flood control and environmental health. Thus, government has seen a necessity to become involved with wetlands because of the public character of these natural resources. The destruction of wetlands affects the economic and social welfare of a community in one or more of the following ways:

²Industrial land use projections have not been made. Difficulty in projecting industrial land use needs arises because of the inability to predict future types of land uses and specific quantities.

1. Erosion and Landslide

The flat terrain of wetlands, as well as high absorbent qualities of peat and the stems, leaves and roots of plants slows down the rate of runoff. If water is allowed to run unrestrained, sediments and nutrients would be flushed from the wetland area. The increased flow eventually would channelize, destroying the retention capacity of the wetlands.

2. Water Quality

Wetlands filter water by trapping and storing nutrients from runoff in plants, and serve as a settling basin for silt. Development in wetlands can overload and damage the natural system. Since wetlands recharge the groundwater during periods of low precipitation, polluted wetlands can destroy drinking water quality.

3. Stability of Water Supply

Wetlands absorb and store storm and flood waters, minimizing their destructive effects. During dry spells, wetlands release trapped water replenishing the water supply and preventing a radical drop in the water table, thus maintaining a relatively stable supply of groundwater. Once the wetland is developed, this function would be eliminated resulting in a less stable water supply.

4. Fish and Wildlife

Coastal wetlands are edges between fresh and salt water. These areas change with the tide and spring floods. The variable mixing of these waters offer a sensitive and essential environment for many types of fish, shellfish and some species of birds. In the event fresh water is removed by pumping or added to by runoff, serious damages to the natural balance of the mixture of fresh and salt water could occur causing adverse effects on the fishing industry.

5. Turbidity and Pollution

Wetlands filter and cleanse water. Overtaxing the coastal wetlands' ability to filter sediments and nutrients by increased runoff or dumping of wastes can destroy the health of wetlands. Pollution of wetlands is particularly harmful in that it takes years for wetland waters to flush; the contaminants remain and continue their damaging effects for years. In addition, polluted wetlands are difficult to contain and would likely spread to neighboring properties.

6. Environmental Health

Wetlands provide habitats for fish and wildlife. Since wetlands are transitional areas between open water and dry land, these areas support a wide variety of both land and aquatic animals. Consequently, they support wildlife and game for hunting and fishing as well as provide areas for wildlife preserves.

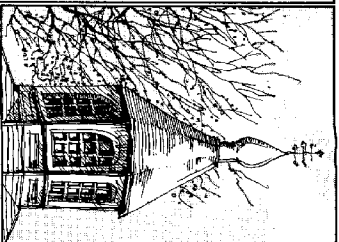
As discussed in the Corps of Engineer's regulations, the aforementioned functions of wetlands have been determined by the government to have such far reaching effects on the environment and such importance to the public interest that it is desirable to protect and preserve these areas. Thus it has also been determined that even though a particular alteration of a wetland may be small in scope, it may be unwise to permit even some minor changes. Cumulatively, the effects of such minor alterations could cause extensive damage.

Programs

The following agencies have an active role in reviewing, commenting and/or approving proposed development in wetlands:

U.S. Army Corps of Engineers:

The Corps has jurisdiction and requires permits for all activities involving the placement of dredged or fill material in navigable waters and their wetlands illustrated in Map 37. Note: This map is only a guide and is not accurate enough to truly delineate actual



The Comprehensive Plan:

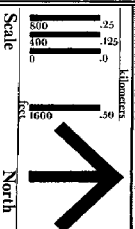
City of Kenai

Wetlands/regulated by:
Army Corps of Engineers

legend:

- ☐ lands not regulated
- ☒ regulated lands

source:
Department of the Army
Corps of Engineers 1978



prepared by:
R.W. Thorpe & Associates
Seattle/Anchorage



The preparation of this document was financed in part by funds from the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, U. S. Department of Commerce, administered by the Division of Community Planning, Department of Community and Regional Affairs.

Figure 37

wetland boundaries. The following list are examples of types of activities which require permits from the Corps: artificial canals and islands, beach nourishment, boat ramps, breakwaters, bulkheads, dams, dikes, weirs, discharging of sand, gravel, dirt, clay or stone, dolphins, dredging, filling, grains and jetties, intake pipes, levees, mooring buoys, ocean dumping, outfall pipes, pipes and cables, piers and wharves, riprap, road fills, signs and tunnels.

The U.S. Army Corps of Engineers uses the following criteria when reviewing an application for development:

1. The relative extent of the public and private need for the proposed structure or work;
2. The comparative desirability of using appropriate alternative locations and methods to accomplish the objective of the proposed structure or work;
3. The extent and permanence of the beneficial and/or detrimental effects which the proposed structure or work may have on the public and private uses to which the area is suited; and
4. The probable impact of each proposal in relation to the cumulative effect created by other existing and anticipated structures or work in the general area.

The District Engineer of the Corps also refers applications to other agencies in order to obtain their comments and recommendations. Such agencies include the Environmental Protection Agency, Fish and Wildlife Service, National Marine Fisheries

Service of the National Oceanic and Atmospheric Administration, Soil Conservation Service of the Department of Agriculture, Department of Fish and Game and any other agencies which would have an interest in the proposed use. Thus the review times and need for coordination can be very significant.

Upon receipt and review of comments and recommendations from the aforementioned agencies, the District Engineer shall determine whether the proposal affects the quality of the human environment. In the event, he determines it does not, a permit will be issued. If he determines that a permit may be warranted but that the proposal would affect the quality of the human environment, preparation of an EIS will be required.

Environmental Protection Agency (EPA):

The EPA issues permits for the discharge of pollutants into navigable waters and their wetlands. The term pollutants includes dredged soil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharge into water.

The EPA also has authority over the site location of disposal of dredged material in navigable waters. The agency can prohibit or restrict the use of a site if it is determined that the materials will have an unacceptable adverse effect on municipal water supplies, shellfish beds, fishery areas, wildlife areas or recreational areas.

In addition, the EPA has authority over the discharge of fill material in wetlands. In order to acquire a permit the applicant must demonstrate the following:

1. The activity associated with the fill must have direct access or be in proximity to water resources in order to fulfill its basic purpose; or other site or construction alternatives are not practical.
2. The proposed fill and activity associated with it will not cause a permanent unacceptable disruption of the beneficial water quality uses of the affected aquatic ecosystem or; the discharge is part of an approved Federal program which will protect or enhance the value of the wetlands to the ecosystem.

U.S. Fish and Wildlife Service (FWS):

Federal permits for water related development are reviewed by the FWS (as authorized by the Fish and Wildlife Coordination Act) to determine the impacts of the proposed development on fish and wildlife and their habitat. The FWS provides a report to the lead agency and to the permit applicant.

National Marine Fisheries Service (NMFS):

The NMFS reviews all permit applications considered by the Corps of Engineers and provides comments concerning the applications possible impact on the marine, estuarine and anadromous fish environment.

Alaska Department of Environmental Conservation (DEC):

The DEC is responsible for developing regulations, issuing permits, reviewing plans and providing assistance. The Department regulates wastewater disposal, water quality, oil pollution control, pesticides, solid waste management, drinking water and air quality.

Alaska Department of Natural Resources (DNR):

The DNR issues permits prior to any diversion, impoundment or withdrawal of unappropriated waters. The DNR considers the following factors when reviewing an application for development:

1. The benefit to the applicant resulting from the proposed appropriation;
2. The effect of the economic activity resulting from the proposed appropriation;
3. The effect on fish and game resources and on public recreational opportunities;
4. The effect on public health;
5. The effect of loss of alternate uses of water;
6. Harm to other persons resulting from the proposed appropriation;
7. The intent and ability of the applicant to complete the appropriation; and
8. The effect upon access to navigable or public waters.

The following uses are exempted from regulations by the Department of Natural Resources;

1. The use of less than 100 gallons of water per day for the domestic purposes;

2. The temporary use of water, during a single period not to exceed 120 days, for drilling construction and other activities that do not require a permanent or seasonally receiving water use; and
3. The use of water in a remote location where it will not impinge on other uses.

Soil Conservation Service (SCS):

The SCS offers technical assistance to individuals, organizations, local, state and federal agencies on the conservation development and productive use of soil, water and related resources.

The aforementioned agencies independently review applications for development in wetlands in accordance to their respective expertise. The Corps of Engineers serves as a coordinating agency for these agencies to which they can voice collectively their comments and recommendations. In addition to the above agencies which are keyed to the Corps of Engineers permit process, the Kenai Harbor Commission has review jurisdiction over Kenai tidelands.

Corps of Engineer Permit Process:

1. Applicant submits application form (Engineer Form 4345) to the Corps of Engineers.
2. District Engineer reviews application for completeness and request from the applicant any additional information he deems necessary for further processing.
3. District Engineer issues a public notice with all pertinent information to the applicant, appropriate City and Borough officials, adjoining property owners, appropriate State

agencies, concerned Federal agencies, concerned business and conservation organizations and any other interested party. Copies will also be sent to the Field Representative of the Fish and Wildlife Service, Regional Director of the National Park Service, Regional Administrator of the Environmental Protection Agency, Regional Director of the National Oceanic and Atmospheric Administration (NOAA), District Commander of the U.S. Coast Guard and the Regional Director of the Department of Fish and Game for their review and comments.

4. Interested parties must voice their views concerning the permit application. Their response must be received by the District Engineer within 30 days from date of mailing of public notice. Lack of response is interpreted as meaning there is no objection to the application.
5. The District Engineer prior to public notice makes a preliminary determination as to whether the quality of the human environment would be significantly affected by the proposal. In the event the District Engineer, after receiving responses to the public notice, believes that a permit may be warranted but that the proposed activity would significantly affect the quality of the human environment, he will require the applicant to furnish any additional information he considers necessary to allow his preparation of an EIS. An EIS normally requires approximately one year to produce.
6. If the application is denied, the applicant may examine an alternative or eliminate the objectionable features of the original plan and resubmit the application.
7. If the application is approved, the applicant is required to pay one fee if the project is non-commercial in nature and provides personal benefits that have no connection with a commercial enterprise. Another fee will be charged if the project is commercial or industrial in nature. Upon receipt of fee a permit will be issued.

Recommendations

The applicant can help speed the process by acquiring professional help to assist with the compilation of information, study of feasible alternatives and assist with the drawings. In cases where there is a question whether the site is within wetlands, a soils scientist's report would assist the Corps and expedite the process. Presently, the Corps must make a site by site field survey.

The following list of soils are considered those typically found in wetlands, the Wetlands of the City of Kenai.

Peats: Starichikof, Salamatof, Clunie, Doroshin

Silt Loams: Kalifonsky

Shoreline: Tidal Flats, Tidal Marsh

The consultant study team has refined the Corps of Engineers maps, and received concurrence on redefinition of soils as wetlands areas which resulted in revised mapping. However, the City can assist by continuing to develop a more accurate wetland map which would assist potential developers in choosing a site which would have the fewest effects on the wetland environment. The Corps would benefit by the consequential reduction in unacceptable requests for permits and the reduction in need for field surveys. Both parties would benefit by the shortened time required for permit processing. The revised mapping process and acceptance by the Corps of Engineers needs to be pressed by the City of Kenai and Borough planning staff. It is recommended that communications be established for the purpose of refining the data base and permit process.

It has been recommended in the proposed zoning code that publically owned wetlands be preserved by zoning such areas conservancy. This zoning classification would ensure the preservation of approximately 7,950 acres of the roughly 10,000 acres of undeveloped wetlands. The remaining 2,050 acres of wetlands lie in private ownership. The City may have the opportunity to acquire these wetlands through a mutually agreeable exchange of ownership of lands if appropriate exchange mechanisms are adopted. Approximately 3,900 acres of developable lands are in public ownership, parcels of which could be exchanged for privately owned wetlands. This exchange of lands would enable private investors to acquire developable lands in areas which are viable and relatively inexpensive to build upon. It would also provide the City with a method in which to preserve this valuable natural resource.

It is further recommended that the City adopt a wetland management program, which would include the adopted land use plan as a statement of future land use needs, especially for water dependent industrial uses. If accepted, for example by the Fish and Wildlife service, it would assist in permit processing, with the guarantee that industrial/-commercial development will be limited to lands presently zoned for such.

Recommended Design Criteria*

1. Anchor buoys: Anchor buoys should be encouraged in preference to docks.
2. Bulkheads: Bulkheads should be discouraged.
3. Culverts: All culverts should be constructed so that water flow will not be restricted which would increase current velocity.
4. Culverts: Culverts should be placed at a depth sufficient to insure that artificial impoundments are not created.

* These design criteria summarize those discussions in the Corps of Engineers' Kenai River Review, which may be consulted for further information on this topic.

5. Dikes: Dikes should be vegetated immediately to prevent erosion.
6. Docks: Docks and piers should not exceed the length and size required for the intended use.
7. Docks: Docks, piers and platforms which are in a state of disrepair, which serve no demonstrated public purpose or exist with no Federal permit and which have adverse affects on the environment should be removed.
8. Docks: Docks should be portable to facilitate removal and thereby minimizing susceptibility of damage to the structure and damage caused by the structure from washouts during flooding.
9. Drainage: No structure should be constructed in a manner that would cause drainage of an adjacent wetland.
10. Drainage: All structures should be designed to minimize disruption of drainage, and prevent runoff, erosion and sedimentation.
11. Drainage: In the event fill or excavation is found to be necessary, adequate provisions should be made to accommodate drainage channels.
12. Excavations: Excavation for slips and ramps should not extend below the ordinary low water mark.
13. Excavations: Excavated material should be placed inland a sufficient distance to insure that it does not re-enter the river through erosion. It should not be deposited in wetlands.
14. General: No structure should alter or disrupt tidal circulation or the exchanges of fresh and salt water.

15. General: No structure should be constructed on a cut (high-energy) bank.
16. General: Waterfront businesses should be encouraged to use multiple use facilities and utilize existing developed areas rather than develop new areas.
17. Mining: Mineral exploration and development should be limited to the shortest time period essential to the work proposed.
18. Piers: Piers or catwalks should be encouraged in preference to fills to provide needed access over wetlands.
19. Pilings: Structures when practical should be built upon pilings rather than fill.
20. Ramps: Ramps and slips should be constructed during periods of low water.
21. Riprap: Riprap should be used to prevent erosion.
22. Riprap: Riprap material should be of sufficient size and bulk to prevent the material from being washed away.
23. Vegetation: All effort should be made to retain existing vegetation during all fill and excavation.
24. Vegetation: Vegetation should be used in preference to any other material for the purpose of bank stabilization.

The following land uses and facilities are examples which generally have minimal impacts and are more likely to be granted a permit than other uses and facilities.

- Boat anchorage and mooring
- Cables and transmission lines
- Camping areas
- Docks or piers
- Nature or hiking trails
- Wilderness preserves
- Wildlife reserves

Regulatory agencies are likely to be more tolerant of land uses which are water oriented and require a water front location. The following typify such uses:

- Commercial fishing enterprises
- Small boat marinas and port facilities
- Historical or Cultural sites to be preserved
- Boat ramps.

Definitions

Dredge Material - Material that is excavated or dredged from waters of the U.S.

Fill Material - Any material used for the primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of a water body.

Navigable Waters - Coastal and inland waters, lakes, rivers and streams that are navigable waters of the U.S. including their adjacent wetlands and tributaries.

Wetlands - Those waters that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

The following table depicts those uses which should be permitted, conditionally permitted and should not be permitted in wetlands. Those uses which have no adverse impacts on the wetland environment should be permitted. Those uses which are coastal dependent but may have adverse impacts should be conditionally permitted. All other uses should not be permitted.

Table 18

Permitted Wetland Uses

Use	Permitted (No Adverse Impacts)	Conditionally Permitted (Coastal Dependent and Adverse Impacts)	Not Permitted (Adverse Impacts and not Coastal Dependent)
Undeveloped Parks	X		
Shoreline Preserves and Floodplains	X		
Wildlife Reserves	X		
Wilderness Preserves	X		
Small boat marinas and Port facilities		X	
Seafood Processing		X	
Mining		X	
Transportation		X	
Utilities		X	
Historical cultural sites		X	
Low density residences		X	
Medium to high density residences			X
Non-water oriented commercial			X
Non-water oriented industry			X

Footnotes

¹ This figure was computed by the consultant firm by examining soil conditions within the City. In contrast, the Army Corps of engineers wetland designation map indicates a more extensive area than was identified by the consultants. The difference lies primarily in the designation of Kalifonsky soils - silt loams underlain by gravel and sand deposits having a fairly high water table and existing primarily near Muskeg areas. The consultants determined that despite some constraints to building development in the Kalifonsky area due to the high water table, there is more capability for construction than on wetlands.

² Industrial land use projections have not been made. Difficulty in projecting industrial land use needs arise because of the inability to predict future types of land uses and specific quantities.

Services

Introduction

This study deals with the City's infrastructure (services and facilities) - roads, water and sewer service, schools, police and fire protection, airport, parks, library and the like. Development and maintenance of services and facilities are vital for the future growth of the community. Poor service levels inhibit growth and spur decline. As Kenai becomes increasingly urbanized, present services and facilities will gradually become inadequate. City staff must periodically monitor new growth demands on existing services and facilities and plan for expanded services and facilities in order to provide adequate services, facilities and maintenance levels.

The initial intent and purpose of this study element as a part of the comprehensive planning process for the City of Kenai envisioned identification of users of City services that lived both inside and outside of the City with the intent of trying to quantify the level of services used by residents from outside the City of Kenai. The question is one faced by all communities and appropriate to analyze relative to the services the City is providing and what will be needed in the future as growth follows that predicted in the Comprehensive Plan. The end product would be to tie the provision of services for non-Kenai residents to users fees if they were granted or to further limit access of non-residents to those services.

The magnitude of the study was significantly reduced, however, in discovering that in recent years the City has tightened policies covering the provision of fire, police, snow removal, road maintenance and other public services including utility extensions outside of the existing City limits. This left only areas such as the airport and library and, to some degree, overnight recreational facilities in parks and some in-City recreational facility areas, for further consideration.

It is the study team's conclusion that the identification of users beyond the City for the airport and library is extremely difficult and the disbenefit of trying to charge for difficult to define service

levels may be offset by those people utilizing commercial services within the community that support the City's tax base. In terms of the parks, these facilities can be more clearly supported by users fees for overnight recreational facilities. However, where parks are a part of the school system which is supported by Borough-wide taxes, users fees would not be appropriate. Library services may be further tightened by policies to charge fees for non-resident library cards that offset residents tax support. Thus, the extent of services provided by the City to non-City residents seems to be very limited and offset by the tax benefit of those people utilizing in-City retail services that support the City tax base.

Analysis

For the purpose of this study, public facilities and services have been divided into four categories: (1) services used and paid by the user of the service, (2) services used and paid by City residents, (3) services used by the local populus but funded mainly by non-residents, and (4) services used by non-City residents but paid for by City revenues.

The first category includes water and sewer service. These services are not entirely funded by service charges but this is the main source of revenue. Services which fall into the second category include roads, police, fire, library, parks, schools and the airport. There are a number of services which are primarily used by the residents of Kenai but are funded mainly by non-residents. These services and facilities include Administration, Zoning, Subdivision, building, animal control and, to some extent, roads.

The aforementioned services and facilities are a major factor why Kenai is a trade center and has a sizable tourist industry. The City profits from revenue brought into the City by non-residents in the form of sales tax, income from businesses derived from rents, licenses and taxes. If a service or facility charge were imposed on parks, libraries and the like, use would decrease. The same would also be true for an increase in sales tax. The attraction of Kenai would diminish with increased cost.

Service and facility charges should be restricted to those where the provided service can be directly linked to the user. Such services include water and sewer and, to some extent, ambulance service, animal control and overnight campers.

The following table depicts the owner, user and source of revenue of public facilities and services.

Table 19
REVENUE SOURCES

Public Facility/Service	Provider of Service		User of Service				Source of Revenue			
	City	Borough	State	Residents	Borough	Regional	User	City	Borough	State/Federal
Water	X			X			X	X		X
Sewer	X			X			X	X		X
Solid Waste Disposal		X		X	X			X	X	
Roads	X		X	X	X	X		X		X
Trails/Walks	X		X	X				X		X
Maintenance	X		X	X	X	X		X		X
Police	X		X	X	X			X		X
Fire/Emergency	X			X	X			X		X
Animal Control	X			X			X	X		
Library	X			X	X			X		X
Parks	X			X	X	X		X		X
Administration	X			X				X		
Zoning	X	X		X				X		X
Building	X			X			X	X		
Subdivision	X	X		X			X	X	X	
Airport	X			X	X	X	X	X		X
Schools		X		X	X				X	X

The following sources of revenue have not been tapped but, represent a potential means of increasing the General Fund.

TAXES

Interest on Taxes (Limited Potential)

Payment in Lieu of Taxes

FEDERAL REVENUE

Federal Revenue Sharing

Anti-Recessionary

Law and Justice

Housing and Community Development

STATE REVENUES

General Grants

Street Signs

Highway Safety Grant

Council on Aging

Ambulance Grant

Justice Grant

Recreation/Parks Grants

CURRENT SERVICE CHARGES

Maintenance-State Roads

Rescue Service Fees

Library Donations

Miscellaneous Donations

OTHER REVENUE

In-Kind Support

Sale of Other Assets

Contribution from Reserves

Increasing revenue can also be accomplished by increasing taxes, licenses and permits, service charges or other revenues such as rents and leases. Sale and/or leases of City owned lands represents a significant potential for future income streams.

Table 20
GENERAL FUND EXPENDITURE BUDGET
1979-80 APPROVED

Program	Budget	Percentage of Total
<u>GENERAL GOVERNMENT</u>		
Legislative	34,123	1.0
City Clerk	47,963	1.4
City Attorney	90,255	2.6
City Manager	63,407	1.8
Finance	187,458	5.5
Department of Revenue	30,805	0.9
Non-Departmental	584,183	17.1
Planning and Zoning	13,585	0.4
Harbor Commission	<u>1,499</u>	<u>0.1</u>
Total General Government	1,053,278	30.8
<u>PUBLIC SAFETY</u>		
Police	547,208	16.0
Fire	554,867	16.2
Communications	130,336	3.8
Animal Control	<u>40,550</u>	<u>1.2</u>
Total Public Safety	1,272,961	37.2
<u>PUBLIC WORKS</u>		
Public Works Administration	109,745	3.2
Shop	204,706	6.0
Streets	154,524	4.5
Building Inspection	37,976	1.1
Street Lighting	<u>27,250</u>	<u>0.8</u>
Total Public Works	534,201	15.6
<u>LIBRARY AND MUSEUM</u>		
Library	86,891	2.5
Museum	<u>10,629</u>	<u>0.3</u>
Total Library and Museum	97,520	2.8

PARKS AND RECREATION

Parks	40,519	1.2
Recreation	32,039	<u>0.9</u>
Total Parks and Recreation	72,558	2.1
OTHER	392,667	11.5
TOTAL GENERAL FUND	3,423,185	100.0

Table 21

GENERAL FUND REVENUES
1979-80 APPROVED

Description	Revenue	Percentage of Total
CONTRIBUTION FROM FUND BALANCE	250,000	7.3
<u>TAXES</u>		
Real Current	1,162,497	34.0
Real Prior	49,468	1.4
Personal Current	195,899	5.7
Personal Prior	1,000	0
Oil Current	101,457	3.0
Sales Tax	1,088,000	31.8
Franchise Tax	12,000	0.4
Total Taxes	2,610,321	<u>76.3</u>
<u>LICENSES AND PERMITS</u>		
Building Permits	15,000	0.4
Taxi Permits	200	0
Animal Licenses	600	0
Total Licenses and Permits	15,800	<u>0</u>
FEDERAL REVENUES	0	0 ¹
<u>STATE REVENUES</u>		
Library Grant	250	0
Lighting Agreement	4,300	0.1
State Revenue Sharing	163,300	4.8
Business License Revenue	130,000	3.8
Fish Tax	35,000	1.0
Liquor License	13,500	0.4
Electric Co-op	24,000	0.7
Gaming Devices	750	<u>0</u>
Total State Revenues	371,100	10.8

¹ Note recommendations - potential source of revenues

CURRENT SERVICE CHARGES

Commission-Dept of Revenue	25,000	0.7
Finger Print Fees	300	0
Animal Adoption Fees	500	0
Animal Impound Fees	1,500	0
Fire School Charges	10,000	0.3
Court Fines	16,655	0.5
Library Fines	3,000	<u>0.1</u>
Total Current Service Charges	56,955	1.7

OTHER REVENUES

Miscellaneous Revenue	5,000	0.1
Rents and Leases	22,793	0.7
Tideland Rents	410	0
Ft. Kenay Rents	1,500	<u>0</u>
Total Other Revenues	29,703	0.9

INTERFUND TRANSFERS

From Airport to Terminal Fund	11,400	0.3
From Airport Land System	42,106	1.2
From Water and Sewer Fund	35,800	1.0
Total Interfund Transfers	89,306	<u>2.5</u>
TOTAL GENERAL FUND REVENUES	3,423,185	100.0

Table 22

WATER AND SEWER FUND REVENUES
1979-80 APPROVED

Description	Revenue	Percentage of Total
LICENSES AND PERMITS		
Inspection Fees	750	0.2
<u>CURRENT SERVICE CHARGES</u>		
Penalties and other Interest	2,500	0.7
Residential Water	77,000	21.3
Commercial Water	116,000	32.1
Residential Sewer	65,000	18.0
Commercial Sewer	92,000	25.4
Total Current Service Charges	352,500	97.5
<u>STATE REVENUE</u>		
State Revenue Sharing	8,270	2.3
Total State Revenue	8,270	2.3
TOTAL WATER AND SEWER FUND REVENUE	361,520	100.0

Table 23

DEBT SERVICE FUNDS REVENUES
1979-80 APPROVED

Description	Revenue	
1964 ISSUE		
Contribution from Fund Balance	10,875	
1967 ISSUE		
Contribution from Fund Balance	27,322	
Transfer from Water and Sewer	66,448	
Total	93,770	
1969 issue		
Contribution from Fund Balance	5,855	
Total	5,855	
1974 REFUNDING ISSUE		
Transfer from General Fund	362,667	Restricted Reserve
Transfer from Land System	8,000	Capital Improvements
Special Assessment Funds	34,163	
TOTAL DEBT SERVICE FUNDS	404,830	

Water System

The Kenai City Water System consists of two wells, both in the Beaver Creek area. The combined capacity is approximately 2,300 gpm. A 3,000,000 gallon reservoir was recently completed at the southeast corner of the airport which will significantly increase storage capacity. The cost of the reservoir is approximately \$1,500,000, funded under the Local Public Works Act.

The present system serves approximately 1,000 residential units and 90 businesses or about 75 percent of the population. It is anticipated that the existing facility will be adequate through 1992.

It is recommended that service be limited to those areas with moderately high densities. Without adequate consumption, distribution line circulation will be slow and prone to freezing. The combination of high maintenance and installation costs of servicing low density areas would increase costs per unit in these areas by approximately three times.

Presently nearly all revenue for water service is obtained through service charges. The following table depicts total service charge for water service and average cost to the residents and businesses of Kenai.

Table 24

WATER SERVICE CHARGES (APPROVED FOR 1979-1980)

Residential Water	\$ 77,000	\$ 77 a year per household
Commercial Water	<u>\$116,000</u>	\$1,289 a year per business*
Total	\$193,000	

* This figure reflects heavy water use by several industries.

As a result of the aforementioned problems, isolated areas at the extreme east and west ends of Kenai have inadequate or contaminated water and no fire protection water.

Wastewater System

The Kenai Sewer System as of June 1977 served approximately 975 residential units and 85 commercial units. The system serves approximately the same area as the water system with the exception of some areas near the eastern extremity of the City. Approximately 74 percent of the population resides in the sewer service area. The wastewater is treated by a secondary treatment plant with a design capacity of 0.5 mgd.

The plant operates at or over design capacity for several months of the year. The City is in the process of undertaking a facilities plan for expansion of the treatment plant and collection system.

As with the water system, service should be limited to those areas with a moderately high density.

The following table depicts service charges for sewer service.

Table 25
SEWER SERVICE CHARGES

Residential Sewer	\$ 65,000	\$ 67 a year per household
Commercial Sewer	<u>\$ 92,000</u>	\$1,082 a year per business*
Total	\$157,000	

* This figure reflects heavy sewer use by several industries.

Corresponding to the water service area, the sewer service area has isolated areas which are not served. They include much of the Beaver Creek and West Kenai Neighborhoods.

Water and Sewer Service

The City of Kenai Water and Sewer Fund Revenue approved for 1979-80 is \$361,520.

Table 26
WATER AND SEWER FUND REVENUE

Water Service	\$193,000
Sewer Service	\$157,000
Penalties and Interest	\$ 2,500
State Revenue Sharing	\$ 8,270
Inspection Fees	<u>\$ 750</u>
Total	\$361,520

The approved budget for 1979-80 is as follows:

Table 27
WATER AND SEWER BUDGET

Water and Sewer Division	\$207,891
Sewer Treatment Division	<u>\$153,629</u>
Total	\$361,520

Solid Waste Disposal

A solid waste disposal system is operated by the Borough, located near the North Kenai Road and Forest Drive. Collection of solid waste is provided by private collection service. It is projected the site will be adequate through 1982. Land fill operations are funded through property taxes rather than service charges. It is recommended this policy for funding be reexamined. A service such as solid waste disposal, which benefits only those who use the service should be funded by a user charge.

Police

The Kenai City Police Department currently has twelve officers and six dispatchers and six jailers. The Police/Fire Facility, built in 1972, is adequate to serve the needs of the present and projected population of the City in the next 5 to 8 years. However, some personnel support facilities at satellite fire station locations may improve cost/service benefit ratios. Population growth and crime statistics should be monitored for future personnel and equipment needs.

The City approved \$547,208 for the Police budget of which the following identifiable revenue will be received.

Table 28
POLICE FUND REVENUES

State Revenue Sharing	\$ 49,620
Taxes	\$497,288
Fingerprint Fees	\$ 300

Airport

The 7,500 foot Kenai Municipal Airport is capable of handling large jet traffic. Consequently, the airport has made the City an important center for trade and tourism. The 1979 Kenai Airport Master Plan recommends the following improvements for the next 20 years.

1. Expansion of the float plane basin
2. Additional tie downs for general aviation
3. A full runway length parallel taxiway
4. A 3,700 foot general aviation runway.

The following tables depict revenue available for the Kenai Airport:

Table 29
AIRPORT LAND SYSTEM REVENUES
1979-80 APPROVED

Description	Revenue	Percentage of Total
<u>STATE REVENUES</u>		
Aviation Fuel Tax	5,000	2.1
Total State Revenues	5,000	2.1
<u>OTHER REVENUES</u>		
Rents and Leases	199,615	81.9
Landing Fees	30,000	12.3
Gasoline Fees	6,000	2.5
Total Other Revenues	235,615	96.7
<u>INTERFUND TRANSFERS</u>		
From General Fund	3,106	1.3
Total Interfund Transfers	3,106	1.3
TOTAL AIRPORT FUND REVENUES	243,721	100.0

TABLE 30
AIRPORT TERMINAL FUND REVENUES
1979-80 APPROVED

Description	Revenue	Percentage of Total
STATE REVENUES		
State Revenue Sharing	20,675	17.7
Total State Revenue	20,675	17.7
OTHER REVENUES		
Rents and Leases (Incl. City Rents)	72,370	61.8
Commissions, Car Rentals	24,000	20.5
Total Other Revenues	96,370	<u>82.3</u>
TOTAL AIRPORT TERMINAL FUND REVENUES	117,045	100.0

The largest source of revenue comes from rents and leases of City owned lands received from the Federal Aviation Administration.

Library

The new Kenai Community Library is owned and operated by the City of Kenai. The service area is considered to extend to mile 12 of the Seward Highway. The 1979-80 budget has allocated \$86,891 for operation of the library. Income sources for the operation are as follows:

Table 31
LIBRARY FUND REVENUES

Source	Amount	Percentage of Total
Library Fines	\$ 3,000	3.5
Library Grant	250	0.3
Taxes	<u>83,641</u>	<u>96.2</u>
Total	\$86,891	100.0

Educational Facilities

The Kenai Peninsula Borough administers Sears Elementary, Kenai Elementary, Kenai Junior High, and Kenai Central High Schools. A recently approved bond issue will provide a new Junior high and high school in Soldotna which will relieve some of the burden on the Kenai Schools. Present needs of the School District are adequately served. However, it may be necessary to build elementary schools in the West Kenai and Beaver Creek Neighborhoods to handle increased population.

The 1980 operating budget for the Kenai Peninsula Borough Schools will be funded mainly by the State of Alaska. The following table depicts sources of revenue for the School District.

Table 32

SCHOOL FUND REVENUES

State of Alaska	75.9 percent
Kenai Peninsula Borough	19.1 percent
Federal Government	1.3 percent

Park and Recreation Facilities

There are six outdoor recreational facilities. Most are oriented toward day activities rather than overnight camping. There is no charge for camping for up to three days but a permit must be obtained and a fee paid for longer periods. Demand for overnight camping facilities increases during construction activity by construction workers and fishing season by out of town fishermen.

The 1979-80 City of Kenai budget calls for \$40,519 for Parks and \$32,039 for Recreation. Revenue for this budget will be accounted for through taxes. User fees are a potential option for supplementing the budget and providing more direct cost to the persons benefited.

Recommendations

Kenai, more than most cities has benefitted by tourists and trade oriented businesses. The city has the opportunity to generate more revenue by promoting the tourist and trade industries. As these industries grow, revenue increases in the form of sales tax, business licenses and rent and leases of city owned land. Increasing sales taxes and/or service charge rates may initially raise the total city revenue but over a period of time will adversely affect the attraction of the city for new development and increased tourism. Consequently, it is recommended the city follow a general policy of maintaining the current tax and service rates.

It is further suggested the city increase its revenue by encouraging growth in tourism and trade. City incomes can also be improved through better management, leasing, and/or disposition of public lands. The land bank program and new City Lands Manager will provide the potential for maximizing City income potentials from land ownerships.

According to City records, at present the City receives no General Fund Revenues from Federal sources. The City should explore revenue potentials that are presently available to most communities.

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Implementation Strategies

Introduction - Implementation Strategies

This chapter presents the strategies proposed for implementation of the City of Kenai Comprehensive Plan.

For the past nine months, the planning team of R. W. Thorpe & Associates and Mundy-McCrackin & Associates working with the City of Kenai, have prepared the various elements of the Comprehensive Plan for the community. The elements of the Comprehensive Plan include: land use, community facilities, circulation and the business district plan. In the development of the comprehensive plan the consultants, along with the City's board and citizens, have investigated various ways of realizing the intents of the overall plan. At the outset of the plan, the consultants undertook an evaluation of the City's existing ordinances and other implementation devices in light of the existing zoning and previous comprehensive planning in the community. From our review of the existing mechanisms, we have developed implementation strategies which can be divided into two approaches:

1. Direct recommendations to the City Council and Planning Commission related to administrative procedures and policy considerations. Also, the identification of influence areas in unincorporated lands adjacent to the City.
2. Traditional implementation strategies; including zoning and subdivision ordinances.

The first approach is directed at City policies toward land use, circulation, community facilities and land development in the business district. The implementation strategies include suggestions as to additions to City staff, policies toward development of City lands with severe development constraints and specific recommendations directly related to realizing specific elements of the Comprehensive Plan. These implementation mechanisms are intended as flexible policies which can be applied by the City Council and the Planning Commission in future land use decision making.

The second approach to implementation is more traditional in nature, encompassing zoning and subdivision. The Draft Zoning Code, prepared and presented with the Comprehensive Plan, was drafted as the development of the Comprehensive Plan took place; it is therefore closely related to the details of the Comprehensive Plan. This zoning draft incorporates measures to implement many of the concepts discussed in the plan, and to overcome the deficiencies in the existing ordinance. Subdivision Design standards have also been drafted, consistent with the proposed zoning and with this Plan. Both of these drafts, will, of course, require detailed community review and public input prior to finalization and adoption.

The Land Use Element

The land use element of the Comprehensive Plan proposes some unique and significant changes from the existing land use patterns established in the existing zoning. The land use element of the Comprehensive Plan was developed after a thorough understanding of both the physical and human environment. The inventory for the physical and human environments were analyzed and the community categorized into various landscape zones. These landscape zones essentially identified three areas of potential consideration in the development of the Land Use Plan. They are as follows: (1) Lands most suitable for building development where growth should be encouraged; (2) Lands holding severe constraints to building development where building should not be permitted; and (3) Lands holding limited constraints to building development, where building could be allowed with development controls. In evaluating Kenai's landscape zones and the suitability of lands for urban development, the proposed Land Use Plan provides for the following changes:

1. The Conservancy classification under the existing zoning has been changed to provide for only uses which are compatible with the severe constraints inherent in wetlands, shore cliffs, or major drainage courses.

2. Residential land uses within the City have been expanded in a hierarchy of densities intended to better separate low density residential areas from medium to high density residential areas.
3. Commercial development outside the Central Business District has been encouraged to be neighborhood convenience in character. General Commercial uses have been retained in some outlying areas in order to accommodate commercial activities dependent on highway locations.
4. All public lands with severe development constraints have been designated conservancy. All major drainage ways and shore cliffs have been designated conservancy.
5. Land use designations within the business district have been reorganized. The central commercial land use has been eliminated in favor of general commercial land uses, and thus a wider range of commercial activities.
6. Two new industrial categories have been added to the Land Use Plan--an office/manufacturing park category will serve to insure a better transition between incompatible land uses. The airport-industrial designation includes all land owned and operated by the Kenai Municipal Airport, previously designated as conservancy.

Community Facilities and Circulation Elements

The implementation of the community facilities and circulation elements of the Comprehensive Plan will take place primarily through the adoption and application of the capital improvements program.

Airport Lands and Tidelands

A more formalized and streamlined process is required to coordinate the development, lease or sale of airport and riverfront lands in the City. The agency or body with primary jurisdiction over the harbor and the airport (whether they are separate Airport and Harbor Commissions, or a combined Ports Commission) will need to coordinate its development plans and programs with the overall Comprehensive Plan, and with the Advisory

Planning Commission. All matters dealing with the exchange, sale or lease of airport or harbor lands should fall under the jurisdiction of the Airport/Harbor Commission(s). The Advisory Planning Commission will be responsible for site plan review and insuring that any proposed development is in conformance with the overall Plan, Zoning and Subdivision Regulations. The review process that is established should reflect the different focuses of the commissions involved.

City Lands Manager

It is recommended that the City create a management position in charge of overseeing the sale or lease of all public lands within the city. This individual would preferably have a strong background in land economics, property management, contracts, law, appraisal of urban planning or a combination of these disciplines. The lands manager would work in close association with public agencies or offices having an influence on the subject lands. As was described in the Land Use Plan, those public lands near the downtown area which do not have development constraints are generally valuable for commercial development. Public ownership for the most part is in very large parcels around the city limits. Recent leasing of these lands for private development has stimulated growth by encouraging clusters of commercial development. The city has the opportunity to further encourage growth by orderly management of development on public lands.

The City Lands Manager through the auction or lease of public lands or exchange of deeds of public lands for private lands could achieve the following goals:

1. Encourage development in downtown Kenai
2. Encourage development on "buildable lands."

3. Acquire private lands which have severe development constraints (wetlands, steep slopes, shore cliffs, major drainage ways).
4. Provide exchange of publicly-owned and for privately-owned aquifer recharge areas for public benefit.
5. Encourage infilling on partially developed lands.
6. Encourage development in areas already served by water and sewer service.
7. Further the goals and policies of the Comprehensive Plan.

It is reasonable to expect that the cumulative effects of the actions of a City Lands Manager would provide the following services to the community.

1. Allow private land owners to exchange lands unsuited for development for developable lands in areas which are relatively inexpensive to build upon, support infilling, reduce utility costs, and transportation costs.
2. Enable the preservation of wetlands, shore cliffs and major drainage ways without being at the public or private landowners expense.
3. Stimulate more development in the downtown area, increasing the city and business economic viability.
4. Promote better utilization of land by encouraging concentration and intensification of land uses.
5. Assist in controlling development sprawl.
6. Assist in creating a more definitive Central Business District.
7. Reduce the City's cost for constructing and maintaining streets and utilities which may have been required if development had occurred in remote areas of town.

It is recommended that the City Lands Manager hire professionally designated real estate appraisal firms to ascertain the fair market value of lands to be sold or exchanged. The cost of such appraisal should be shared equally by both the city and private land owner. As a very general guideline it can be expected that the exchange of

developable lands for wetlands should be roughly 1 acre: 5 to 8 acres for residential lands, 1:8 to 15 for commercial lands, with industrial lands being 1: 12 to 20. (i.e., 1 acre of public land: range of private wetland acres)

Prior to any exchange or sale of lands the City Lands Manager shall schedule a public hearing before the Advisory Commission or Airport or Harbor Commission to present the merits of the proposed transaction to public disclosure, with appropriate legal notice.

The City Lands Manager shall undertake a study to determine city lands to be disposed of as well as those private lands desirable for the city to acquire. All lands to be disposed of shall either be auctioned, exchanged for undevelopable lands or leased.

Wetlands

It is recommended the City undertake on-going efforts to further clarify wetlands within the City limits as identified in the Corps mapping and the Comprehensive Plan study. A more accurate map would eliminate much of the unnecessary work of the Army Corps of Engineers and other agencies regulating development of land. Fewer unacceptable proposed developments in wetlands would be submitted and, fewer on site inspections would be necessary. The developer would benefit by a speedier review process and eliminate any doubt on the developability of the land in question. It is further recommended that the Army Corps of Engineers continue to be consulted during future mapping updates in order to gain their approval and adoption of the map.

Staff Reports

It is recommended that the City Manager set up procedures that insure communication between City and Borough departments, committees, commissions and councils concerning major actions such as large land transactions or developments. This can be accomplished by requiring staff reports and investigation into actions concerning affected agencies or departments.

Staff reports should be required for all sales or exchanges of land, proposed subdivisions, rezones, annexation and amendments to the Zoning Ordinance and Subdivision Ordinance. The lead department should transmit a copy of the proposed action to each affected department or agency for its comments and recommendations. All comments and recommendations shall be transmitted to the person(s) making the final decision on the proposed action. Such reports shall be available for public review and shall be reported at the applicable public hearing.

Capital Improvement Program

The Capital Improvement Program is an overview of up-coming major expenses which the city must face in order to accommodate growth and provide essential public services. It is anticipated that projects having the highest priority include construction of the City Hall and multi-purpose meeting room, warm storage building, city parks, arterial improvements, trails, satellite fire station, airport improvements, etc. The area by area priority lists are then grouped in a collective program and correlated to potential income sources and projected time frames.

Zoning Ordinance

Through analysis of the Attitude Survey of the existing zoning ordinance and other applicable zoning ordinances, comments from the Kenai Advisory Planning and Zoning Commission and Borough staff, the consultant firm has drafted a zoning ordinance. The following problems or areas that need clarification in the existing ordinance have been identified.

1. The existing ordinance does not adequately spell out criteria from which the Zoning Official and Planning Commission are to make decisions. Responsibilities and procedures should be more clearly stated.
2. Zoning districts should be more distinct. There is a problem of duplication between principally permitted uses as well as their standards and regulations.

3. There is a need to provide more stringent regulations between incompatible land uses. For example, an alley is required between an industrial and residential use. The alley conceivably could be used for industrial access compounding the problem of incompatibility. A different method to separate incompatible land uses is needed.
4. Existing regulations are very lax, particularly, landscaping and screening and separation of incompatible land uses and off-street parking regulations.
5. Areas having potential building constraints such as wetlands, shoreline cliffs and major drainage ways should be preserved or contain very limited development. Prescribed development constraints should be imposed to protect these natural resources.
6. The purpose of the Conservation Zone is to preserve open space, watersheds and wildlife reserves. The following uses fall within the existing classification; airport lands, gardening and farming, parks, off-street parking lots, cemeteries and radio and T.V. towers. However, parking lots full of cars, cemeteries, airports and communication towers conflict with the intent of this zone. Open space, watershed and wildlife reserves would be better protected by limiting the intensity of development and uses allowed in this district.
7. The amount of residentially zoned lands of Kenai far exceed even long-term projected needs. Housing development patterns, in a haphazard pattern increases the costs of public services and utilities. The city could direct development to areas more desirable for development by:

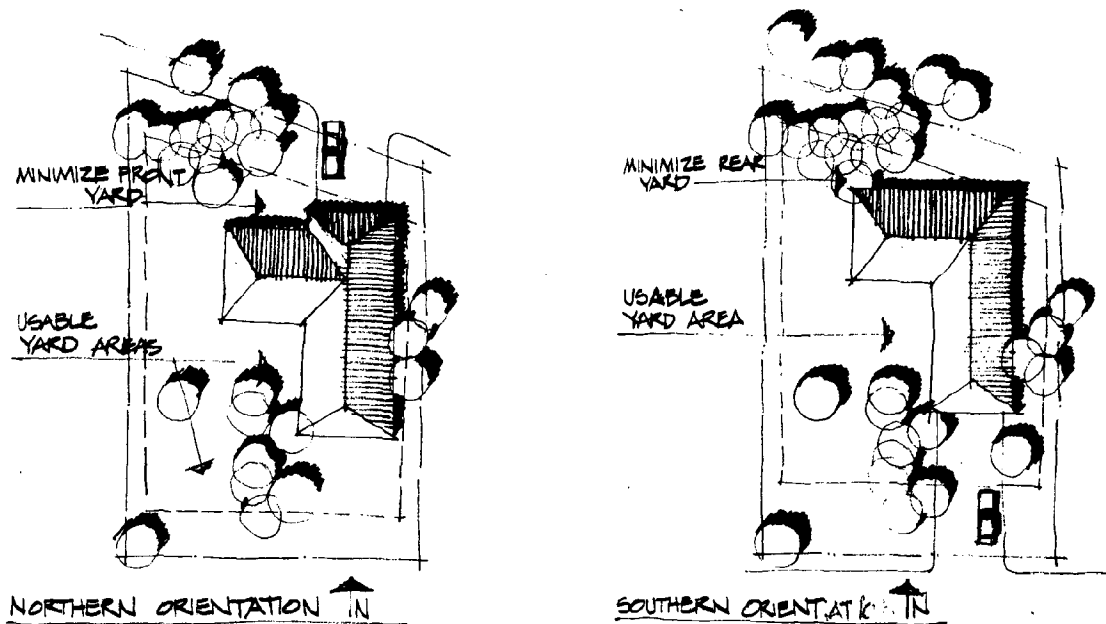
- a. Zoning public undevelopable lands conservation and placing an overzone on private undevelopable lands restricting undesirable development;
- b. Buying lands undesirable for development or trading through a landbank.
- c. Passing on construction and maintenance costs on to the developer which would provide incentives to build on already developed and serviced areas.

- 8. Under the existing ordinance, Rural Residential is customarily rezoned to Suburban Residential when the city provides sewer and water facilities. Automatic rezoning to higher density residential districts should not be based solely on a change in water and sewer service.

This policy would eventually convert major areas of low density residential districts. If an area is not served by water and sewer service, prescribed minimum lot area should be increased from that allowed in the zone.

- 9. A surface water drainage ordinance should be adopted and referenced in the Zoning Ordinance.
- 10. The existing zoning ordinance does not provide definitions for building heights in each zone.
- 11. A city wide landscaping plan could ensure that the minimum setbacks from streets and highways be landscaped.
- 12. The Urban Residential Zone allows an unlimited number of units in multiple family structures. There is a concern whether streets in downtown Kenai could accommodate the traffic generated from an unlimited amount of multiple family dwelling units. Delineation of density limits by zone and structure should be considered.

13. The present minimum lot width requirements for residential zones does not take into consideration lots at the end of cul-de-sacs and other lots with peculiar lot dimensions. It is recommended that all residential lots have a minimum lot frontage of 25 feet plus a minimum mean lot width of at least 60 feet.



14. It is recommended that flexible setback requirements be adopted in order to take advantage of site and sun. It is recognized that minimal setbacks could violate a neighbor's sense of privacy on smaller lots, however flexible setbacks could be effective on lots of 10,000 square feet or larger.
15. The ordinance should be changed to shift more responsibility to the developer or builder by requiring non-single family development plans to be stamped, indicating conformance to city standards and regulations by registered surveyor, engineer, architect, etc. This will induce the developer to submit more detailed, professional plans, thus shifting liability to the developer and his consultants and reduce the city's workload of plan review.

Spheres of Influence and Future Study Areas

Section on Spheres of Influence and Future Study Areas, including Figures 38 and 39, were deleted from draft plan by Kenai Borough Assembly action prior to adoption of Ordinance 80-9.

